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DECEMBER, 1873.

NOTES ON THE TASTELESS IRON COMBINATIONS.

By E. Rutter.

Having been engaged in the preparation of these salts since their introduction by Mr. Creuse, of Brooklyn, in May last, it has always been an object with me to ascertain their true composition. The theory of double decomposition falls at once to the ground, as in that case one molecule of ferric salt would require only two molecules of alkaline citrate; whereas it will be found that four molecules of the latter are always required to form the green compound. Now citric acid, as is well known, may, under certain conditions, be resolved into oxalic and acetic acids, and the similarity of color to that of ferric oxalate led me to suppose that the reaction might consist in the splitting up of the organic acid and the formation of a double oxalate of potassium and iron, together with chloride, iodide, or phosphate of potassium, according to which salt was used. Such, however, is not the case, for on treating the green compound with excess of alkali, filtering out the iron, and adding calcium chloride to the filtrate, a precipitate is formed which is freely soluble in acetic acid, and cannot therefore be calcium oxalate. This theory set aside, the only one tenable seems to be the following:

$$Fe_2I_6 + 4K_3C_6H_5O_7 = 6\ KI + 2\ (K_3Fe'''2C_6H_5O_7).$$

that is the formation of double citrate of iron and potassium together with potassium iodide.* Believing this to be the true reaction, I tried the experiment of mixing potassic and ferric citrates in equiva-

*This result has been experimentally proven by G. F. Dickman in *The Pharmacist* for September; the saline residue left on evaporating the green solution yielded to alcohol iodide of potassium.—Ed. Am. Journ. Pharm.

lent proportions, and obtained a solution possessing the qualities and general appearance of the so-called tasteless salts. Calculating from the formula, the dried salt should yield 13·913 per ct. of ferric oxide, I ignited several portions, but, owing to the absence of crystallization and the varying degree of moisture, failed in obtaining exact results. The potassio-ferric oxalate is another of these double salts. It may be obtained by mixing solutions of ferric oxalate and neutral potassium oxalate in the proportion of one molecule of the former to three of the latter, as follows:

$$Fe_2 3C_2O_4 + 3\,K_2C_2O_4 = 2\,(K_3Fe'''3C_2O_4).$$

On evaporating the solution the salt may be obtained in beautiful green crystals, freely soluble in water but insoluble in alcohol. It possesses the same quality of tastelessness, without astringency, as the double citrate, and has the advantage of being stable, easily obtainable in crystals, and therefore more definite in composition.

Whether it is expedient to employ a mixture of two different compounds in place of a definite preparation, is a question for the physician to answer; but it seems probable that if he wishes to give iron in combination with chloride, iodide or pyrophosphate of ammonium, sodium or potassium, as the case may be, he would prefer to order it so in his prescription. The tendency of late years has been towards the employment of more concentrated remedies in place of the cumbrous formulas of ancient times.

EMULSION OF COD LIVER OIL.

By Willard M. Rice, Jr.

(Read at the Pharmaceutical Meeting, November 18.)

The high and important position occupied by cod liver oil in the lists of the materia medica, has induced many pharmacists and others to turn their attention to perfecting some mode by which this nauseous remedy may be rendered palatable and acceptable. Many of the formulæ so elaborated have been published in this and other pharmaceutical journals, while it is to be regretted that others have been withheld, thus placing their authors in the constantly increasing lists of nostrum venders. But none of the efforts thus far made have succeeded in *completely* masking the unpleasant fishy taste and smell of cod liver oil, although some approach very nearly to this "consummation devoutly to be wished."

After a series of experiments, at the request of, and assisted by, a medical friend, the writer of this has perfected the following formula, which he offers to his professional brethren, hoping that it may prove useful:

Oleum morrhuæ,	fl.℥viij.
Tragacanth,	ʒj.
Sacchar. alb.,	ʒiv.
Ol. gaultheriæ,	gtt. lx.
" sassafras,	gtt. l.
" amygd. amar.,	gtt. x.
Aquæ,	fl.℥viij.

The tragacanth and sugar are to be dissolved in the water and the mucilage strained. In this is to be incorporated first the essential oils and then the cod liver oil. This makes an elegant-looking emulsion, not too thick, containing fifty per cent. of the oil, and of a rather pleasant taste and smell.

Many manufacturers combine the lacto-phosphate of lime, etc., with the cod liver oil mixture, but as physicians often consider this decidedly objectionable in a medicine intended, as this is, in most cases, for continued use for a considerably protracted length of time, the author has been induced to omit it. It can be added, however, by a slight modification of the above formula.

NOTES ON PANCREATIN.

By Richard V. Mattison.

(Read at the Pharmaceutical Meeting November 18.)

The increasing popularity of pharmaceutical preparations of this valuable substance induces the writer to offer to the profession a few notes on the subject, hoping they may be of service in the elimination and proper exhibition of it in a medicinal form, which will be pleasant and agreeable both to the sight and palate.

Prefacing these remarks, a short notice of the pancreas and its action will be found interesting. This is situated within the curve formed by the duodenum, and opens into the intestine by a duct common to itself and liver. In its anatomy it closely resembles the salivary glands, and the fluid elaborated by it, called *pancreatic fluid*, appears almost identical with ptyalin. Like this secretion, pancreatic fluid, when pure, is a colorless, transparent and slightly viscid liquid,

alkaline when fresh, quickly, however, on standing, becoming first neutral and then acid, differing, however, from saliva in containing no sulphocyanogen. It resembles albumen in being nearly wholly coagulated by heat, and also by the mineral acids, especially when concentrated; precipitated also by alcohol. When this precipitated coagulum is separated from the liquid, and water added to it, it is soluble, thus essentially differing from albumen.

Its specific gravity is from about 1·008 to 1·009, and contains from 13 to 19 per cent. of solid matter, of which, according to Schmidt, about 12½ per cent. is pancreatin.

The action of this peculiar principle upon starch is to change it to glucose, and upon fatty and oily substances to quickly emulsify them, thus rendering them easily absorbed and assimilated by the lacteals.

Bernard supposed the fat to be decomposed, and Fownes also states that the fat is resolved into fatty acid and glycerin. This is denied by most recent writers, and such is certainly not its principal action, no saponification apparently taking place, which fact may be easily proven by thoroughly mixing, with agitation, a solution of pancreatin with cod liver oil. After emulsification, which almost immediately occurs, the oil may be separated by simply agitating the emulsion with ether or petroleum benzin.

This *emulsification* is the *essential* purpose of the pancreatic fluid, thus breaking up the fatty globules and allowing assimilation to proceed with rapidity, and in this respect is greatly superior to either saliva or albumen. Liquid fats are insoluble in the aqueous albumino-saline fluid, with which the vascular tissues are saturated; consequently no absorption can take place, and the oil passes from the patient in the same state in which it was administered. This occurs most frequently during the administration of cod liver oil to phthisical patients, and the association of this oil with pancreatin offers a valuable and natural method of administration.

At the time when the subject was brought to the writer's notice, he was largely engaged in the manufacture of saccharated pepsin by the process of Mr. E. Scheffer (an excellent one, by the way), and the idea suggested itself that perhaps a solution of sodium chloride would precipitate pancreatin in the same manner as it does pepsin. After some preliminary experiments, the following was adopted as furnishing the best result:

The pancreas are dissected and macerated in water acidulated with

hydrochloric acid for about forty-eight hours, then separated, and the acidulated solutiom of pancreatin passed through a pulp filter until it is perfectly clear. To this clear solution is then added a saturated solution of chloride of sodium and allowed to stand until the pancreatin is separated. This is carefully skimmed off and placed upon a muslin filter and allowed to drain, after which it should be washed with a less concentrated solution of sodium chloride, and then put under the press. When all the salt solution has been removed, and the mass is nearly dry, it is rubbed with a quantity of sugar of milk, and dried thoroughly without heat, after which it is diluted until ten grains emulsify two drachms cod liver oil. To this may be given the name of "saccharated pancreatin."

An elixir being suggested for the exhibition of this in an elegant form, the following formula was devised, and we think will be found very agreeable.

Pancreas, ...	No. vj.
Acid hydrochlor., ...	f℥iv.
Glycerin, ...	q. s.
Aqua cong.	iss.

Macerate the dissected pancreas for three days in the mixture of water and acid with Oiiss of glycerin added; then separate the liquid, strain and add f℥iiss oil of orange and a sufficient quantity of glycerin, to make the liquid measure Cong. iiss; this is then filtered until perfectly transparent. The result is a sweet acidulous elixir, one fluidrachm of which will easily emulsify half a fluid-ounce of cod liver oil—a valuable addition to the number of preparations combining efficiency with pharmaceutical elegance.

Philadelphia, Eleventh month 10, 1873.

NOTES ON AROMATIC WATERS.

By Joseph P. Remington.

Read before the Pharmaceutical Meeting, Nov. 18, 1873.

This class of preparations has long found favor with physicians as a means of dissolving and administering such potent or disagreeable remedies as are readily soluble in water, and the increasing use of carbonate of magnesium in their manufacture (although probably not the best method),* renders their preparation of easy accomplishment.

* See Minutes of Pharmaceutical Meeting, page 564.

The first requisite is the selection of fresh essential oils. An aromatized water made from a stale and terebinthinous oil is the worst advertisement a pharmacist can have, whilst, if a fresh oil is at hand, even an aromatized orange water can be made which will serve many good purposes. The writer has used an orange water made in the usual manner with considerable satisfaction, and a very useful simple elixir resembling Curacoa Cordial may be made by taking of

Aqua Aurantii (ʒij in a pint)	fʒiss.
Simple Syrup . . .	fʒiss.
Cologne Spirit . . .	fʒj.
Spt. Vini Gallici (opt.) .	fʒss.

Mix.

Some formulas for simple elixirs direct the essential oils to be mixed with the spirit, and then a certain proportion of sugar and water added and filtered. The great objection to those made in this way is that when such are used in prescriptions with water in combination (and it is generally used in this way), a separation of the excess of oil takes place, which renders the preparation unsightly.

A delicately flavored syrup of citric acid may be made which will be clear and bright, not disfigure the sides of the bottle, nor have the harshness that the officinal article possesses.

To make this, double the quantity of fresh oil of lemon prescribed by the officinal formula should be rubbed up with a small quantity of carbonate of magnesium, a little water added, thrown on a filter, then followed by more water, sufficient to form with the sugar and citric acid the syrup of officinal strength.

Compound aromatic waters are readily made, containing caraway, coriander, cinnamon, orange and orange-flower flavors, and form a means of preparing the host of elixirs that are now required:—

The mixed alkaloids to be dissolved in cologne spirit, syrup added, and the salt soluble in water, dissolved in the aromatic water.

COSMOLIN AND PARAFFIN OINTMENT.

By A. W. Miller, M. D.

Read at the Pharmaceutical Meeting, November 18th.

This preparation is by its manufacturers explained as being purified and concentrated petroleum. According to the most trustworthy information which we were able to obtain, it is made by distilling

crude petroleum so as to remove successively the gasolin, benzin, burning oils and the lighter machine oils. The residuum is then subjected to still greater heat, and its vapor is brought into contact with a jet of superheated steam, for the purpose of expelling the last traces of light hydrocarbon. After this it is still further purified and deodorized by the action of hot animal charcoal. We are consequently forced to conclude that cosmolin is simply impure paraffin, or a mixture of paraffin with varying proportions of the heavy oils which are nearest allied to it. These oils are known to the trade as paraffin oil, neutral oil, lubricating oil, spindle oil, &c. Although the manufacturers claim cosmolin to be a simple body, this is refuted by their own statement, namely, that they furnish this one simple body in the form of cerate, which remains firm at 95°, as a jelly which is fluid at 85°, and also as a liquid which is still fluid at 32°.

Taking advantage of the fact that paraffin is only very sparingly soluble in alcohol, we dissolved cosmolin in ether and in benzin, from both of which solutions the paraffin was readily precipitated by the addition of alcohol. Cosmolin is turned dark brown, like caramel, by sulphuric acid, but this is no doubt due to its impurities. Nitric acid produces no reaction in the cold, but when heated turns it yellow and finally orange color. Muriatic acid and liquor potassæ have no effect upon it, either cold or hot. All of these tests point to the presence of paraffin.

As cosmolin appears to possess some merits, and is certainly gaining favor with physicians, it would be desirable to contrive a formula for its preparation.

With this object in view a number of experiments were instituted for the purpose of obtaining a combination having similar physical and chemical properties. The substances which seemed most suitable were pure paraffin, and the so-called neutral oil, of the best quality, which possesses less of the peculiar coal oil smell than any other kind examined. The gravity of this oil is 32° to 33°, and its boiling point is somewhere about 500°. Coal oil dealers claim that this oil is free from odor, though this statement is only relatively true. In order to deodorize it still more, it was percolated through hot animal charcoal.

One part of paraffin was melted and three parts of the oil, prepared in the manner described, were added to it. This compound, a sample of which is presented herewith, has the same behavior towards reagents as cosmolin. Like this, it melts at about 95°, does not evaporate be-

low 400°, and of course will not turn rancid. Its odor is rather stronger than cosmolin; the color is somewhat different, though this is most probably due to using pure paraffin, as some of the impure grades have the same peculiar amber color as cosmolin. Both preparations when burned emit the characteristic smell of coal oil, and give off a copious black smoke; ignited drops of both fall down with a peculiar hissing sound. The chief difference appears to be in the mode of preparation, as the manufacturers of cosmolin claim to use no chemicals, while it is well known that both paraffin and the heavy oils are purified by sulphuric acid and soda. Still, as the compound which may be appropriately called "paraffin ointment" was boiled in distilled water without making it either acid or alkaline, the much-dreaded chemicals have evidently been completely removed.

Cosmolin is vended at the somewhat exorbitant price of $1 per lb., while paraffin ointment can be sold at a very fair profit for one fourth of that price.

The above formula for this substitute for cosmolin is not offered as the best that may be devised, but only for the purpose of directing inquiry to this subject. The varieties of heavy coal oils in the market are so numerous that it becomes a tedious task to examine them all. We were in fact promised a sample of a purified paraffin oil made in Boston, which was represented as being almost identical with cosmolin, but it has not as yet arrived.

In conclusion we would state that cosmolin does not appear to be so entirely free from all irritating properties as it is claimed to be. A case has been communicated to us by Dr. Louis G. Bauer, one of our members, in which he applied it for an aggravated and obstinate form of eczema, occurring on the upper lip. It was productive of a high degree of inflammation and considerable tumefaction, although citrine ointment and similar preparations had been previously employed without such results.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Tartaric acid in purgative solutions of magnesia.—E. Léger proposes to convert tartaric into metatartaric acid by heating it to 170° C. (338° F.), when it readily fuses, loses its property to crystallize and forms with magnesia a very soluble salt. This salt has no unpleasant taste, and is more energetic and reliable in its purgative ac-

tion than citrate of magnesium. He recommends to heat a small quantity of tartaric acid in a porcelain or silver capsule over a slow fire, until, with occasional agitation, it fuses, when more tartaric acid is added in small quantities, with the precaution not to reduce the temperature too much, so as to avoid the solidification and subsequent burning of the mass. When sufficient acid has been added, the same heat is continued until the whole has become completely liquefied, when it is of a light amber color and entirely converted into the metatartaric acid. It is then removed from the fire, and when it has acquired a suitable consistence, it is formed into flat cakes, which are to be kept in well stoppered bottles, the modified acid being very hygrometric.

To prepare the purgative solution, a portion of the requisite water is added to the mixed acid and carbonate of magnesium, all heat being cautiously avoided to prevent the acid from passing again into the state of ordinary tartaric acid, which would precipitate as tartrate of magnesium. The solution is effected in a few minutes, and keeps unaltered for several weeks. The author gives the following proportions for making this solution extemporaneously:

Modified tartaric acid, 13, 17, 20, 23, 27, 30, 33, 37, 40, 43, 47 grams.
Carbonate of magnesium, 7, 8, 10, 12, 13, 15, 17, 18, 20, 22, 23 "

—*L' Union pharm., Sept.*, 1873.

New process for tar water.—L. Pommier prepares a concentrated tar water by macerating in a covered vessel for eight days a mixture consisting of ten parts each of Norwegian tar and ammonia water, and of one hundred parts of water; the mixture is then boiled to expel the excess of ammonia, then cooled and filtered. Thus prepared, it has a mild alkaline reaction to litmus, and may be diluted as required.—*Ibid.*

Preparation of pure metallic silver.—R. A. Wawrinsky has observed that carbonate of calcium, employed to precipitate the copper from the nitric acid solution by Græger's method,* will invariably precipitate some silver. At the suggestion of Prof. Almén he employed carbonate of magnesium, and found that copper nitrate is gradually precipitated by carbonate of magnesium at the ordinary temperatures, while silver nitrate is, under the same circumstance, affected only after a long time. If the mixture is kept at between

* See American Journal of Pharmacy, 1872, p. 277.

40° and 50° C. (104° and 122° F.), the copper is readily precipitated, while the precipitation of silver commences near 60° C. (140° F.)—*N. Jahrb. f. Pharm.*, 1873, *October*, from *Upsala Läkareförenings Förhandl.*

Fat in ergot.—Oscar Ficinus estimates the amount of fat in ergot at 30 per cent., and regards it as the cause of the ready decomposition of the powder. He suggests that powdered ergot, if deprived of fat by ether, will keep much better; but the dose of the powder will have to be reduced one-third, or else the loss in weight will have to be compensated for by the addition of some inert powder, like liquorice root or milk sugar.—*Archiv d. Pharm.*, 1873, *Sept.*

Valerianic acid from fusel oil.—Oscar Ficinus has made the interesting observation that valerianic acid may be obtained in a similar manner as acetic acid by the quick vinegar process, if beechwood chips are substituted in the cask by cut valerian, and the diluted fusel oil is slowly percolated through it at a temperature of 30° to 40° C. (86° to 104° F.) The process, however, is not applicable on a large scale, owing to the length of time required and on account of the loss sustained by the evaporation of fusel oil and the simultaneous formation of amyl-aldehyde and valerianate of amyl-oxide.—*Ibid.*

Analysis of the bark of Remijia Velozii.—This, one of the so-called false cinchona barks is known in Brazil as *Casca della quina de Remijia.* Dr. J. Nowak found in it much tannin, coloring iron salts green, pectin compounds, dextrin, mucilage and two compounds, either identical or closely allied to kinovin and kinovic acid. The air dry root yielded 12·2 per cent. ashes, containing 7 per cent. iron, 21 per cent. silicic acid, potassium, sodium, calcium, magnesium, chlorine, and phosphoric, sulphuric and carbonic acids.—*Zeitschr. d. Œsterr. Apoth. Ver.*, 1873, *Oct.* 10.

Tecoma Ipe, Mart., nat. ord. *Bignoniaceæ*, is called ipe-tabaco in Brazil; its pale brownish wood, the raspings of which have the color of snuff (hence the popular name) is used against herpes in the dose of one ounce taken morning and evening in the form of decoction. The decoction of the bark is employed in herpetic affections and as a gargle in angina tonsillaris. The juice of the leaves is used as a remedy in paralysis of the eyelids, and the infusion in ophthalmia impetinosa, particularly in photophobia.

Dr. Th. Peckolt has separated from one kilogram of the wood 21·8 grams pure chrysophanic acid, 37·5 bitter extractive and 109·375 of resin, somewhat resembling resin of guaiacum in appearance, but becoming golden yellow with nitric acid, and being finally oxidized to picric acid.—*Ibid.. Nov.* 1.

PHARMACEUTICAL NOTES.*

By J. B. Barnes.

Guaiacum resin, as it is imported, is exceedingly impure, which will be seen by the following experiments: Sixteen ounces of guaiacum resin supplied by the wholesale druggist, a sample of which I place before you, was exhausted by boiling in rectified spirit; the quantity of purified resin obtained was 13 ounces and 288 grains; the insoluble woody particles weighed 2 ounces and 139 grains, or 14·4 per cent. of impurity.

Another experiment was made by operating in a similar manner upon 8 ounces of powdered guaiacum resin obtained of a wholesale house, which yielded about 7 ounces of pure resin, and 412 grains or 11·7 per cent. of impurity, consisting of a brown bulky powder.

These results show that pure guaiacum resin should be used for all pharmaceutical purposes, in preference to the guaiacum resin as imported and, I believe, universally used.

Simple extract of colocynth, prepared by two macerations of the pulp in cold distilled water, pressing, boiling the liquor, separating the coagulated matter, evaporating to dryness, and exhausting with rectified spirit, yielded the same amount of extract as was obtained from the same qaantity and sample of colocynth pulp which had been exhausted with proof spirit and evaporated to dryness until the weight was constant. By this means the use of a large quantity of spirit and subsequent distillation was avoided.

The infusion of roses of the Pharmacopœia, as is well known to all pharmaceutists, loses its transparency when cold. I find that when one part of glycerin is added to eight or nine parts of infusion of roses it at once becomes bright and continues so as long as it keeps good. Also, that when three fluid-drachms of glycerin are added to a mixture composed of one grain sulphate of quinia, one minim of

* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, November 5, 1873.

dilute sulphuric acid, and nine fluid-drachms of infusion of roses, the precipitate of tannate of quinia which forms is dissolved, and the result is a beautiful bright solution. The precipitate which occurs in gargles containing tannic acid and infusion of roses can also be dissolved by the addition of two fluidounces of glycerin to the pint.—*Pharm. Journ.* (*Lond.*), *Nov.* 8, 1873.

NOTE ON A SOLUTION OF IODOFORM.

By Louis Elsberg, M. D.,

Professor of Laryngology and Diseases of the Throat in the University of New York.

A great objection to the employment of iodoform (C_2HI_3) in substance is its bad odor, which is very penetrating and persistent; furthermore, there has not hitherto been in use any effective solution for topical application in cases where ointments are inapplicable. It will doubtless be of interest to all who know the medicinal value of iodoform to learn that both these objections have been overcome. I have found an ethereal solution which deodorizes iodoform, the solution smelling of ether only, and at the same time constitutes an effective topical remedy for diseased mucous membranes, as of the throat, nose, mouth, larynx, vagina, rectum, etc. Rhighini used an ethereal solution for direct inhalation, and Dr. Sass used an ethereal solution and also a mixture of iodoform and sweet-almond oil by means of a spray-producer for inhalation. Dr. Gubler requested Messrs. Odin and Leymarie to ascertain the relative proportions in which iodoform is soluble in ether, and the most favorable conditions for its preparation; their experiments and conclusions are published in the *Pharmaceutical Journal*, August 2, 1873. The London *Doctor* for September 1 tells us that experiments were made with pure ether of 65° Baumé (specific gravity .724), and also with ether of 62° Baumé and 56° Baumé, the temperature being 13° C. Eight grains of tincture obtained with these ethers contained iodoform in solution, respectively, to the following extent:

Ether of 65° Baumé, 1.61 grammes.
" 62° " 1.26 "
" 56° " 1.13 "

The conclusions drawn by the authors from their experiments are:

1. To employ iodoform in the crystalline state.

2. To make the solution in a *red* glass flask by simple agitation.
3. To use the following proportions:

Crystallized iodoform, 1 gramme;
Ether (60° Baumé), 4 grammes.

I had a solution prepared with Squibb's ether, and find that it possesses all the advantages of iodoform in powder for local applications, without its disadvantages. The smarting which the ether may be expected to produce upon the mucous membrane is momentary only, so that the application becomes really painless. Its beneficial effects surpass my expectations.—*Philada. Medical Times, Oct.* 4, 1873.

THE PREPARATION OF LIQUOR BISMUTHI.*

By C. Mehu.

In the formula given by Mr. C. H. Wood for the preparation of Liquor Bismuthi† there are two equivalents of citric acid ordered to one equivalent of bismuth. I have satisfied myself many times that a single equivalent of citric acid is sufficient to obtain a perfectly stable solution of bismuth. In this manner an excess of citrate of ammonium in the liquor is avoided. The method which I adopt is as follows:

I dissolve an ascertained weight of pure bismuth in three times its weight of pure nitric acid, then concentrate the solution and leave it to crystallize. After one or two days the mother liquor which surrounds the crystals is decanted and evaporated in a porcelain capsule at a moderate temperature, so as to completely drive off the excess of acid; in cooling the liquor forms a crystalline mass. All the crystals being put together, I then pour upon them a concentrated solution of citric acid, made with heat. For each equivalent of bismuth I employ an equivalent of crystallized citric acid, being very nearly equal weights of each. The solution of citric acid dissolves completely the crystals of nitrate of bismuth.

In order to obtain citrate of bismuth I divide this solution of nitrate of bismuth in citric acid into two equal parts, and pour into one of them a sufficient quantity of ammonia to dissolve the precipitate that is formed at first, leaving only a slight excess of ammonia, and then add the other portion of the solution. From this mixture there results

* "Annuaire Pharmaceutique," 1873, p. 55.
† "Pharm. Journ." [3], vol. ii, p. 233.

a very white precipitate of citrate of bismuth, which I wash with warm water as long as it gives any traces of acidity, and then dry in a stove. The washings are acid and contain a large proportion of nitrate of ammonium, with scarcely any traces of bismuth. This can be isolated in a state of sulphide by means of sulphide of sodium.

The citrate of bismuth so prepared dissolves in ammonia; the solution can be diluted at will with water without becoming turbid, and may be preserved for years. I have examined during two years several solutions of bismuth containing from 20 to 50 grams of metallic bismuth per litre without recognizing the least alteration. The solubility of the citrate of bismuth is very rapid and easy; it is only necessary to wash solid citrate of bismuth with a strong solution of ammonia to obtain a perfect solution too strong for ordinary use.

When the solution of citrate of bismuth in ammonia is evaporated upon plates there is left a white residue, insoluble in water, but completely soluble, although rather slowly, in ordinary solution of ammonia.

The citrate obtained by the evaporation of the ammoniacal solution yields nothing perceptible to alcohol, unless it contain nitrate of ammonium in excess or some other impurity soluble in that menstruum. The solution of citrate of bismuth in ammonia is not rendered turbid by acetic acid, chloride of sodium, chloride of ammonium, iodide of potassium, ferrocyanide of potassium, or bichromate of potash. It is precipitated by oxalate of ammonium, nitric acid, phosphoric acid, sulphuric acid, and nitrate of urea.—*Lond. Pharm. Journ. Nov.* 8, 1873.

ACTION OF WATER UPON THE RESINOID PRINCIPLE OF OPIUM.*

By L. Perier.

Soubeiran in his *Traité de Pharmacie Théorique et pratique*,† has pointed out that the proportion of water put into contact with crude opium exercises an influence upon the solution of the resinoid principle, oil, and narcotina, but that the resulting modifications of this action are little known. The author has found that at any rate the proportion of water employed plays an important part in the

* Bulletin des Travaux de la Société de Pharmacie de Bordeaux, xiii., 245.

† Fifth edit. (1857), i., 777; seventh edit. (1869), i., 851.

solution of extract of opium, as shown by the following experiments :—

(1) 120 grams of extract of opium was divided into two equal parts; one half was treated with 120 grams of distilled water at 15° C., the other half with 250 grams of water at the same temperature. At the end of six hours, assisted by agitation, solution was complete in both liquids, and they were filtered through paper. The first only left a few bubbles of blackish matter; the second abandoned six grams of oleo-resin.

(2) The first solution was then evaporated to dryness and the product divided into two parts; one was put into a small quantity of water (about twice its own weight), the other into 1000 grams. After twenty-four hours the concentrated liquor was quite limpid and without deposit, but the dilute liquor had deposited a considerable residue.

(3) 30 grams of extract was dissolved in water, under the conditions prescribed in the Codex (ten times its weight of water at 15° C.). The solution was at first muddy, a black granular precipitate covered the bottom of the vessel; but upon evaporation in a water-bath the extract again became homogeneous, and afterwards dissolved in 30 grams without any deposit. In its turn, this solution threw down a precipitate when double its own volume (60 grams) of water was added, and the precipitate was augmented commensurately with the addition of more water. Afterwards concentration reproduced a normal extract, soluble without residue.

(4) The quantity of water employed gave rise to a regular progression in the phenomena of solution and precipitation. If, for example, five grams of extract of opium were put in ten grams of distilled water, the portion which was first dissolved left in suspension a granular deposit. In proportion as the liquid became saturated this deposit was effaced, until at last no more remained undissolved. The maroon black liquid, a layer of four centimetres of which was impermeable by sunlight, did not require filtering; if it were sometimes scarcely clear yet it did not deposit. With five grams more water a turbidity was manifested which was not completely removed by shaking. At the maximum of 20 grams of water the deposit commenced; towards 30 grams, and after standing for an hour, the deposit was nearly doubled; at 50 grams (ten times the weight of the extract) it ceased, and the liquid was no longer troubled by fresh additions of water.

The whole of the resin however could not be removed by water from solutions of opium. Thirty grams of extract which no longer gave a precipitate upon the addition of water, yielded 2·5 grams of black resin when treated with ammonia. Although in this case the extract was the product of a fourth maceration, the phenomenon occurred, but in a less degree, under ordinary conditions.

It thus appears that the same matter will alternately pass through a filter without residue or leave an enormous residue, according as the quantity of water employed is small or large; also that the precipitation ceases when the weight of the menstruum is about ten times greater than that of the substance. It is even possible to dissolve in a very concentrated cold solution a deposit that has not been obtained from it. Finally, that the heat of a water-bath will restore the homogeneity destroyed by an excess of water, an observation that is not in accord with what has been written by other authors. The constant results obtained during his experiments have induced M. Périer to formulate his conclusions as follows:—

(1) The quantity of distilled water at 15° C. in which extract of opium is dissolved has a direct and certain influence upon the partial elimination of the resinoid matter.

(2) Concentrated aqueous infusions of extract of opium do not give any notable precipitate, except with the lapse of time; dilute solutions, where the weight of the menstruum exceeds twice that of the matter dissolved, give as much more residue as the proportion of water is increased from two to ten.

(3) Water, in whatever quantity does not precipitate the whole of the resinoid matter; a certain portion yields only to ammonia.

(4) The residue of extract of opium treated with cold water redissolves in the concentrated mother solution, and heat, instead of aiding in the separation of the resin, oil and narcotina, reconstitutes the homogeneity of the extract.—*Phar. Jour.* (*Lond.*) *Oct.* 11, 1873.

A NEW TEST FOR MORPHIA.*

By Louis Siebold.

In conducting a series of experiments on organic alkaloids, I discovered a new test for morphia, which greatly exceeds in delicacy the tests hitherto known for that substance. If it is to be applied

* Read before the British Pharmaceutical Conference.

for the detection of opium in food, the contents of stomachs, etc., in poisoning cases, it is of course necessary to separate the alkaloid from the other substances in the usual manner. The test is then performed in the following way:—

Heat the substance which is believed to be, or to contain, morphia gently with a few drops of pure sulphuric acid, add a very small quantity of pure perchlorate of potassium. The liquid immediately surrounding the perchlorate will at once assume a deep brown color, which will soon spread and extend over the greater part of the acid. Warming increases the delicacy of the test. 0·0001 gramme of morphia can be distinctly recognized in this way and no other alkaloid is acted upon in a similar way by the substances named. It is indispensable however for the success of the experiment that the perchlorate of potassium be absolutely free from chlorate; if it is not, it must be heated with successive portions of pure hydrochloric acid until the latter remains colorless and ceases to give off chlorine. After removing the HCl completely by washing with water, the perchlorate must be dried at 212°, and is then ready for use. I feel justified in strongly recommending this test to the attention of the chemical profession.

[Some time after I had forwarded the above report to the Secretary of the Conference, another equally delicate new test for morphia was published by Mr. R. Schneider. One drop of pure sulphuric acid is placed on a porcelain slab, and a mixture of one part of morphia and six parts of sugar is added; the mixture will at once assume a purplish red color, which remains unaltered for some time. Codeina and aconitina, if treated in the same way, produce a similar reaction.]—*Pharm. Jour. and Trans., October* 18, 1873.

ON THE ESSENTIAL OIL OF ORANGE (PORTUGAL.)*

By C. R. A. Wright, D. Sc. (Lond.),

Lecturer on Chemistry in St. Mary's Hospital Medical School.

A brief preliminary notice on this subject by the author and Mr. C. H. Piesse was read before the Conference two years ago; since then a large number of experiments have been made, of which the following is a synopsis:

Proximate Constituents.—The great majority of the oil (97·2 per

* Read at the meeting of the British Pharmaceutical Conference.

cent.) distils below 180°; a small quantity of an oxidized constituent boiling near 220° is contained, possessing the composition $C_{10}H_{16}O$; and a non-volatile soft resin is also contained giving numbers on analysis agreeing with the empirical formula $C_{20}H_{30}O_3$, together with another oxidized substance of high boiling point, a portion distilling at 240°—250°, agreeing with the empirical formula $C_{40}H_{64}O_5$.

The oxidized constituent $C_{10}H_{16}O$ is possessed of the property of becoming altered by heat forming an isomeric liquid of higher boiling point, and finally becoming a non-volatile resin, no change in its composition being thereby produced: in this respect it resembles an analogous (or identical?) substance contained in oil of nutmegs.

The portion boiling below 180° yields, on distillation over sodium, a hydrocarbon, $C_{10}H_{16}$, boiling constantly at 178°, and apparently consisting of one homogeneous substance, no trace of cymene being apparently present. Many other natural terpenes (*e. g.*, the terpene of turpentine oil and that of nutmeg oil) are not pure terpenes, having been found to contain cymene, $C_{10}H_{14}$, as well as a $C_{10}H_{16}$ hydrocarbon.

When two equivalents of bromine are cautiously added to the terpene of orange oil (*hesperidene*) combination takes place with evolution of heat; the product breaks up on distillation, forming hydrobromic acid and cymene, thus—

$$C_{10}H_{16}Br_2 = 2\ HBr + C_{10}H_{14}.$$

The cymene thus formed is identical with that contained in cumin oil and with that obtainable from camphor, yielding on oxidation terephthalic acid and acetic acids without admixture with isophthalic acid or higher homologues of acetic acid; the original hydrocarbon *hesperidene*, when similarly oxidized, gives acetic acid, but no trace of terephthalic acid.

If the oxidation be not carried to its limit, the action of chromic acid on hesperidene gives rise to a small quantity of a substance, $C_{10}H_{16}O$, which resembles in all respects save odor the body of that composition contained in the original oil; probably therefore that body is formed by the spontaneous oxidation of the hydrocarbon; or possibly the hydrocarbon is produced by the natural deoxidation of this oxidized substance.

Action of Nitric Acid on Hesperidene.—This action is very energetic, the resulting substances being carbon di-oxide and nitrous red fumes, oxalic acid and a new body, *hesperisic acid*, being formed:

this hesperisic acid forms a lead salt insoluble in water, and a calcium salt soluble in water and precipitated by alcohol from aqueous solution; its barium salt is soluble in water. The acid is obtained by treating the purified calcium salt with sulphuric acid and ether; on evaporation of the ether the acid is left as a honey-like mass, which gradually becomes crystalline. It is hexabasic and has the composition $C_{20}H_{26}O_{17},2H_2O$, the $2H_2O$ being lost at 100°.

Action of Hydriodic Acid on Hesperidene.—Hydriodic acid combines with hesperidene, forming a liquid compound partially decomposed by distillation. Attempts to synthesise an acid containing eleven proportions of carbon by acting on this hydriodide with cyanide of silver, etc., met with little success: it was also found impracticable to add hydrogen on to hesperidene by the joint action of phosphorus and hydriodic acid, a polymeride boiling about 250° being the sole product.—*Pharm. Journ. and Trans., October* 18, 1873.

ON THE DETECTION OF THE ADULTERATION OF TEA.

Read before the British Association for the Advancement of Science.

By A. H. Allen, F.C.S.

As public analyst for the borough of Sheffield, many samples of tea had been brought under the author's notice, chiefly by dealers themselves, in order to guard against selling tea, which, if they had been analyzed by him officially, might have been condemned as adulterated. The analyses of tea up to the present time were by no means numerous; and some were so old that they might well be viewed with suspicion. The three principal constituents of tea were tannin, gum, and "woody fibre," with small quantities of some albumenoid body, theina (the active principle), coloring matters, chlorophyll, essential oils, &c. The proportions of these found by different analysts varied very much, the difference evidently depending upon the methods of determination employed. His object had been more to work out a technical method of testing teas for adulteration than to establish the actual composition of genuine tea. The estimations that had been made of tannin seemed to present the greatest variations, and in many cases they were manifestly wrong. A modification of Dr. Hassall's process, in which a volumetric solution of gelatin was used, had given him very concordant and reliable results, and had made the determination of tannin in tea an operation of a rapid and tolerable simple

character. The use of a standard solution of gelatin for the determination of the strength of tannin matters was nothing new; but he believed he had been the first to employ the process in the examination of tea. Mr. Allen then described the details of the method he employed in the estimation of tannin, stating that he had found by the process in genuine black tea of rather more than average quality 12·5 per cent. of tannin, which presented a close agreement with those in the old analyses of Mulder, which he regarded as the most accurate and complete analyses of tea extant. The estimation of tannin was of the first importance; for if it reached the normal amount all question of adulteration by exhausted leaves was at an end, and foreign leaves were very unlikely to be present. The only fallacy in such a conclusion would be caused by an admixture of catechu, or sloe leaves. The next point of importance was the percentage of "woody fibre," as it was called by some analysts, and here, again, he was disposed to think that Mulder's analysis was the only accurate one. The percentage of gum, insoluble matter, and tannin in any sample of tea, considered carefully, would enable the analyst to form a very accurate opinion as to the presence or absence of exhausted leaves, &c. Analyzed by the above described methods a sample of very superior black Congou tea gave the following results, which he had placed in juxtaposition with the numbers obtained after some of the same sample had been infused in the usual manner in the teapot (the exhaustion was not carried to excess, no second quantity of tea being used), and the leaves re-dried:—

	Original Tea.	Exhausted Tea.
Moisture	9·2	11·1
Insoluble matter	58·7	87·5
Gum	10·5	3·8
Tannin (by gelatin)	15·2	3·3

From this it would be seen that infusion in the teapot resulted in the increase of the insoluble matter by nearly 30 per cent., while the gum and tannin were much reduced in amount. Generally the exhausted leaves were re-dried and made up with gum, which gave them a peculiar glossy appearance, and was detected by excess on analysis. From a table which he had prepared of thirteen different analyses, he gave several instances of adulteration. In one case he was attracted by a table in a window, "Try our fine rough, flavored, thick, sappy, Moning Congou at 2s a lb." The specimen, when examined, was found

to contain catechu, starch, magnesia, metallic iron, graphite, sand, &c. He had also found sloe leaves presenting a close resemblance to green tea in every respect. An inspection of the specimens analyzed showed that genuine green teas were richer in tannin than black teas in about the proportion of two to three. This was no doubt due to the partial oxidation and destruction of the tannin during the process of fermentation to which black tea is subjected in the process of manufacture. Whether the acknowledged superior strength of green tea was due to the larger percentage of tannin present in it, he was not prepared to say. The determination of theina he had made did not account for the difference, and most analysts had found more theina in black than in green tea. The infusion of green tea was not nearly so strong in color as that of black tea, though it was half as strong again in tannin, so that the depth of color could not be regarded as a proof of strength, though generally so considered. If a solution of carbonate of sodium be added to a weak infusion of tea (strained away from the leaves) a considerable darkening was observed, though certainly the infusion could become no stronger. Thoroughly extracted tea leaves yield a brown liquid when treated with carbonate of sodium solution. These facts quite explained why careful housewives had a fancy for putting soda in the teapot, the infusion becoming sensibly darker by the addition, to say nothing of the extra coloring matter from the leaves. Apart from its softening effect on the water (the advantage of which he thought was doubtful), there could be no good reason for its addition. In the methods he had used for detecting facing and coloring there was not much that was new. On treating the tea with warm water the colors and facings came off, and on straining off the leaves and leaving the liquid at rest, they gradually settled to the bottom. If prussian blue or indigo were present the sediment generally had a bluish or greenish color, and the tests for these pigments must be tried accordingly. Magnesia was often present both in the free state and as insoluble silicate. This latter facing he had found on several occasions on green teas of peculiarly smooth appearance and slippery feel. It was detected by heating the sediment with hot hydrochloric acid, and then with solution of caustic soda. The residue was ignited and fused with alkaline carbonate, the first product dissolved in acid, evaporated to dryness, redissolved in weak acid, the solution treated with ammonia and oxalate of ammonium, the precipitate filtered off, and the clear liquid tested

for magnesium, in the usual way, by phosphate of sodium, when an abundant precipitate was obtained, proving the presence of magnesium as silicate.—*Chemical News, Oct.* 24, 1873.

ESTIMATION OF SULPHUR IN IRON AND STEEL.

By T. J. Morrell.

The more common method of estimating sulphur in iron and steel consists in acting on the metal with sulphuric or hydrochloric acid, and precipitating some metallic sulphide by the evolved sulphuretted hydrogen. It would be a desideratum, in point of time, if this sulphide could be directly weighed.

By passing the evolved gases through an ammoniacal solution of cadmium oxide (or a solution of sulphate to which an excess of ammonia has been added), a precipitate of cadmium sulphide is obtained, which can be at once collected upon a small filter, dried at 212° F. and weighed.

The phosphoretted hydrogen, evolved in a solution of the metal together with the sulphuretted hydrogen, causes no precipitate in the solution.

The presence of ammoniacal salts would also prevent any precipitation of carbonate of cadmium by the traces of carbonic acid in the air drawn through the apparatus by the aspirator after the metal is dissolved. However, the aspirated air could easily be passed through potash solution, to remove its carbonic acid.

To prevent the precipitation of oxide of cadmium on the filter, the precipitate should be washed with distilled water containing diminishing quantities of ammonia.

If, in very accurate estimations, it is necessary to estimate the minute quantity of sulphur left in the solution and residue of the metal, this can be done as usual and added to that found as above.

Five test analyses of a piece of Bessemer steel known to contain ·13 per cent. of sulphur, gave as follows: (1) 0·124 per cent.; (2) 0·125 per cent.; (3) 9·137 per cent.; (4) 0·125 per cent.; (5) 0·124 per cent.

Cambria Iron Works, Johnstown, Pa.

—*Am. Chemist.*

ON TEA.

By J. Alfred Wanklyn.

There is no doubt that tea is sometimes adulterated with iron-filings and other preparations of iron, and when public analysts have found that iron had been put into tea leaves they have doubtless, in some instances, found that which had really taken place.

The ash of genuine tea leaves, however, contains iron, and by no means a small proportion of it. In a paper by Zöller (Liebig's *Annalen*, May, 1871), the percentage of oxide of iron in the ash of tea leaves is given as 4·38 per cent. The importance of this determination depends upon the circumstance of the tea having been received direct from the growers, who were personal friends of Liebig's; in that instance, therefore, there could be no question of adulteration. It may be interesting to reproduce Zöller's analysis, which is as follows:—

Potash,	39·22
Soda,	0·65
Magnesia,	6·47
Lime,	4·24
Oxide of iron,	4·38
Protoxide of manganese,	1·03
Phosphoric acid,	14·55
Sulphuric acid,	trace
Chlorine,	0·81
Silica,	4·35
Carbonic acid,	24·30
	100·00

From this it is abundantly manifest that the mere qualitative detection of oxide of iron in the ash of tea is no valid proof of adulteration; and that in order to make out a case it is necessary to show sensibly more than 4 per cent. of oxide of iron in the ash.

On the present occasion I wish to call the attention of public analysts to the importance of investigating the ash of samples of tea. Zöller found the ash of tea leaves to be 5·63 per cent., using in his investigation tea leaves of guaranteed purity. I find that commercial tea yields a very similar result, as is seen from the following analysis made in my own laboratory:—

	Percentage of ash.
Specimen of tea used by myself,	5·63
Civil Service tea,	5·56
Horniman's tea,	5·99
Mandarin's tea, 8s, per lb.,	5·30
Orange Pekoe, 5s. per lb.,	5·84
" " "	6·06
Green tea, 4s. 6d. per lb.,	5·86
Average,	5·75

These determinations were made on tea in its ordinary air-dried condition, and agree sufficiently with Zöller's. The proportion of ash in absolutely dry tea is 5·92 per cent.

Zöller further calls attention to the composition of the ash of spent tea leaves. This, as might be expected, is far less rich in alkalies, being far less soluble. Zöller's analysis is as follows:—

Potash,	7·34
Soda,	0·69
Magnesia,	11·45
Lime,	10·76
Oxide of iron,	9·53
Protoxide of manganese,	1·97
Chlorine,	trace
Phosphoric acid,	25·41
Sulphuric acid,	trace
Silica,	7·57
Carbonic acid,	25·28
	100·00

This ash, as a matter almost of course, must be composed mainly of material insoluble in water.

For practical purposes, that is to say for use by the public analysts, a complete analysis of the ash would be too cumbrous and troublesome. A great deal of information may, however, be gathered from a tolerably simple operation, viz., from a determination of the relative quantities of soluble and insoluble ash in tea leaves. With the object of rendering a determination of this sort available, I have made such determinations on dried leaves of various kinds. The leaves, with the exception of the tea and Paraguay tea leaves, were gathered

by my assistant on the 24th of August this year. The following are the results :—

	Percentages on the dried leaves. The Ash.		
	Total.	Soluble in Water.	Insoluble in Water.
1. Common tea,	5·92	3·55	2·37
2. Paraguay tea,	6·28	4·22	2·06
3. Beech,	4·52	2·00	2·52
4. Bramble,	4·53	1·84	2·69
5. Raspberry	7·84	1·72	6·12
6. Hawthorn,	8·05	3·78	4·27
7. Willow,	9·34	4·16	5·18
8. Plum,	9·90	5·66	4·24
9. Elder,	10·67	3·19	7·48
10. Gooseberry,	13·50	7·83	5·67

From this table it will be apparent that the ash of Paraguay tea is the only ash capable of being mistaken for the ash of tea ; the total percentage would of itself exclude all the others. The ash of Paraguay tea, is, however, distinguished from the ash of common tea by containing a higher proportion of soluble matter.

The ash of beech and of bramble is distinguished from that of tea by being too small in amount, and by containing too little soluble matter. All the rest are exceedingly unlike tea ash.

The determination of the total, the soluble, and the insoluble ash in leaves are made with great facility. Dried leaves burn up with great ease ; and, for the purpose of getting a complete combustion there is no occasion for the employment of nitric acid. I am in the habit of employing about 2 grms. of the dried leaves for the experiment. These I burn in a small platinum dish, and when the resulting ash has become grey, I allow the dish to cool and weigh it together with its contents. The ash is then heated to boiling with a little water, and the solution filtered, and the filtrate evaporated to dryness in a small platinum dish ; the resulting residue is then ignited, cooled and weighed. Thus I get determinations of "total ash" and "soluble ash ;" the "insoluble ash" is found by difference.

Sand is sometimes found in tea leaves ; this is very easy of detection. It will, of course, remain in the insoluble portion of the ash, and refuse to dissolve when that is treated with hydrochloric acid.

The portion of real tea ash which is insoluble in water is almost entirely soluble in hydrochloric acid.

Very many uses may be made of a determination of the ash in a sample of tea. As an example of what may be learnt from such determinations, I will cite an imaginary case, which, however, finds its parallel in practice. Let us suppose that the tea yielded the normal proportion of ash, viz., 5·75 per cent. on the air-dried leaves, and let us suppose that one-third of this consisted of sand. With these data before him the analyst would be justified in finding, not only that there was a little sand in the tea, but that at least one-third of the sample did not consist of genuine tea, but either of some other kind of leaf or of spent tea (which is not so rich in ash as genuine tea).

On a future occasion I hope to publish further researches on tea, and will conclude with an expression of my conviction that a little careful chemical work bestowed on the subject of tea will render the examination of it highly certain and satisfactory.—*Chem. News, Oct.* 10, 1873.

A REVOLUTION IN THE MANUFACTURE OF CARBONATE OF SODA.

By Dr. Rudolph Wagner.

Six years ago, when the international jury at the Paris Exposition expressed their opinion upon the state of the soda industry at that time, all the judges, whether practical or theoretical men, believed that Leblanc's process would hold the field for a long time yet. This seemed still more probable since a process had just been introduced for recovering the sulphur from the soda residues. At that time all the soda in use was prepared by this process, excepting a comparatively small amount obtained from Chili saltpetre and cryolite, although there were already tangible indications that soda could be made on a large scale by another method which would be cheaper than Leblanc's process.

The chemical section of the international jury at the Vienna Exposition, under the presidency of Prof. A. W. Hofmann, constituted a congress of chemical technology. By its labors during the course of the summer this congress of scientific men was able to authenticate the very important fact that although Leblanc's process might in the future possess some importance for certain branches of the industry, yet in most places another soda process would be introduced in the

immediate future, and entirely supersede that of Leblanc. Since the time of the Paris Exposition this new process has grown from a small germ to a strong tree.

The process in question, and which is called by Prof. A. W. Hofmann the ammonia process, is not new from either a chemical or scientific point of view. It belongs to the same class of methods as those in which oxide of lead, bicarbonate of magnesia, quick lime, alumina, silicate of alumina, oxide of chromium or fluosilic acid are employed to decompose chloride of sodium and convert it directly into soda or its carbonate. None of these attempts met with a success deserving of notice, although for a century past efforts have been made to render them practically operative. The new process is founded upon a reaction noticed over thirty years ago—that of bicarbonate of ammonia upon a strong solution of common salt. The greater part of the sodium is precipitated as a bicarbonate, while chloride of ammonium remains in solution, from which the ammonia for a second operation is expelled by quick lime. The carbonic acid necessary to convert the ammonia into bicarbonate of ammonia, and thus make the process a continuous one, is obtained by heating the bicarbonate of soda to convert it into the simple carbonate.

The sensation which the ammonia process has created in industrial circles will render a brief history of its development not uninteresting.

So far as I know, Harrison, Dyer, Grey and Hemming were the first to patent the ammonia process in Great Britain in 1838.* "Great expectations" were excited by it, but it soon sank into oblivion. Thirty or forty years ago the manufacture of soda was by no means at the head of the great branches of industry; at that time, too, ammonia was not to be had cheaply and in immense quantities, and that branch of machine building which has furnished the necessary apparatus for chemical industries did not exist. Besides this, Anthon, of Prague, in 1840, claimed to have proved that in the ammonia process a very considerable portion of the common salt remained undecomposed.

After a sleep of sixteen years the ammonia process again entered the field. On the 26th of May, 1854, Turck took out a patent in France, and on the 21st of June, the same year, Schlœsing, chemist of the Imperial tobacco factory at Paris, took out a patent for France and Great Britain. The mechanical portion and machinery for Schlœ-

* "Mechanics' Magazine," xxxi, page 48.

sing's process were designed by Engineer E. Rolland, director of the tobacco factory. In 1855 a company was organized to work this process. An experimental manufactory was started at Puteaux, near Paris, but owing to its situation and arrangements as well as to the salt monopoly, it could not produce soda cheap enough to compete with the other process, and hence, in 1858, the experiment was abandoned. Schlœsing and Rolland were of the opinion that sooner or later the new process must come into use in making soda.

It must here be noticed that in 1858 Prof. Heeren, of Hanover, subjected the ammonia process to a very careful test in his laboratory. From his experiments and calculations it was ascertained that this process was better adapted to the manufacture of bicarbonate than of the simple protocarbonate of soda.

To render this sketch more complete and historically true, it must be mentioned that T. Bell, of England, took out a patent Oct. 13, 1857, for a new soda process, which in principle and practice was almost literally the same as that of Dyer.

It was known when the jury was working at Paris in 1867 that essential improvements had been introduced into the ammonia process by the efforts of Margueritte and de Sourdeval, of Paris, and James Young, of Glasgow. A more important fact, however, is that Solvay & Co., of Conillet, in Belgium, actually exhibited at the Paris Expotion carbonate of soda prepared by this new process.

Since that time the ammonia process has been developed and perfected to such an extent, especially by Solvay, Honigmann and Gerstenhœfer, that as early as February, 1873, Prof. A. W. Hofmann, in his introduction to the third group of the catalogue of the Exhibition of the German Empire, was able to make this remark: "At all events the ammonia process is the only one which threatens to become an important competitor of the now almost exclusively employed process of Leblanc." The Vienna Exposition has since proved the truth of his assertion.

There are now large soda works in England, Hungary, Switzerland, Westphalia, Thuringia and Baden, which employ the improved ammonia process, and some of them make fifteen tons of soda per day.

The advantages of the new process over that of Leblanc are very evident, although the details of the process have not yet been made public. The chief advantage consists in the direct conversion of salt into carbonate of soda, and next in the fact that from a saturated

brine only the sodium is precipitated, with none of the other metals of the mother liquor. Besides this, the product is absolutely free from all sulphur compounds, the soda is of a high grade, the apparatus and utensils are very simple, there is a great saving of labor and fuel, and no noxious gases and waste products are produced, which is of importance from a sanitary point of view. The only weak point of the ammonia process is the loss of the chlorine, which is converted into worthless chloride of calcium.

The effect which the general introduction of the new soda process will exert upon large chemical industries in general, and especially upon the consumption of sulphur, the manufacture of sulphuric acid, and the price of muriatic acid and chloride of lime, cannot be overlooked.—*Journ. of App. Chem., Nov.*, 1873.

GLYCERATE OF SUCRATE OF LIME AND ITS EMPLOYMENT IN THE PREPARATION OF CHALK LINIMENT.*

By M. Latour.

A recent explosion at Mont Valérien, the victims of which were treated in the military hospital of Saint-Martin, where the author is pharmacien principal, gave him an opportunity on a large scale of profiting by a rapid method of preparing an oleo-calcareous liniment, which he has practiced for some time with satisfactory results. It is specially when it is necessary to prepare such a compound quickly and in considerable quantities that he considers the process presents real advantages. The new ingredients also that he introduces give the compound special qualities, which he thinks would render it suitable for employment in a great number of cases,—such as severe burns, erythema, erysipelas, variable eruptions, chilblains, etc.—where the skin is the seat of more or less inflammatory symptoms.

At first M. Latour employed the solution of sucrate of lime; but in order to avoid the formation of carbonate of lime through the absorption of carbonic acid from the air, he tried the addition of glycerin. This led him to study the solubility of sucrate of lime in glycerin, and finally to construct a formula representing nearly the limit of this solubility and furnishing a dense product of constant composition, to which he has given the name of saturated glycerate

* Répertoire de Pharmacie [n. s.], vol. i, p. 557.

of sucrate of lime. This, in a certain state of dilution, he uses to prepare his new chalk liniment.

Solubility of Sucrate of Lime in Glycerin.—Sucrate of lime is very soluble in glycerin and the addition of water and heat hastens the solution. The temperature may be raised to the boiling point without fear of the coagulation of the monobasic sucrate of lime, which is prevented by the glycerin. The following two experiments had for their object to compare the solubility of sucrate of lime in water and in glycerin, separately:—

(*a*) Fifty grams of dry sucrate of lime, in fine powder, were treated with 100 grams of distilled water, at from 75° to 80° C., the liquor filtered, and the proportion of lime determined by an alkalimetric operation. Ten grams of the solution gave 0·4958 gram of lime corresponding to 3·646 grams of sucrate of lime. The solution was coagulated by heat.

(*b*) One hundred grams of dry sucrate of lime, in fine powder, were treated with a mixture of equal portions of water and glycerin (100 grams of each), at a temperature of 75 C., and the liquor filtered. The filtration was slow. An alkalimetric estimation showed that 10 grams of liquor contained 0·5161 gram of lime, corresponding to 3·756 grams of dry sucrate of lime. In this case heat did not cause the monobasic sucrate of lime to coagulate.

In comparing these results it must be admitted that the solubility of sucrate of lime is nearly equal in water and in glycerin. The slight difference is due to a peculiarity that is worth mentioning. During the evaporation of the sucrate of lime to obtain that compound in a dry state there is formed a small quantity of carbonate of lime. If the sucrate be treated with water traces only of the carbonate formed go into the solution, whilst in the mixture of water and glycerin the whole is dissolved. In fact, if a few drops of hydrochloric acid be added to each of the solutions there is a notable disengagement of carbonic acid from the glycerate, but only a very feeble one from the aqueous solution. This would explain the slight difference in the two experiments.

Saturated Glycerate of Sucrate of Lime.—Without having recourse to the use of dry sucrate of lime, and in order to shorten the operation, a nearly saturated solution of sucrate of lime may be obtained by adopting the following formula:—

Slaked Lime, ... 200 grams.

Powdered Sugar	400 grams.
Water	2 kilograms.
Glycerin	400 grams.

Mix the sugar and lime thoroughly in a mortar; add the water in small portions, so as to obtain a clear pulp without lumps. Put the mixture into a stoppered flask. After contact for twenty-four hours, filter, and add the glycerin to the solution, then evaporate until it is reduced to one litre. It is essential not to add the glycerin until after the filtration of the solution of sucrate of lime, or the filtration will be retarded.

The glycerate of sucrate of lime thus prepared has a density of 1·280 at 15° C. It is not coagulated by boiling; but coagulation takes place if it be diluted with four times its volume of water. It contains, by volume, in 100 cubic centigrams, 7·716 grams of lime, corresponding to 56·55 grams of dry sucrate of lime; by weight, in 100 grams, 6·720 grams of lime, corresponding to 49·42 grams of dry sucrate.

Applied to the skin this glycerate of sucrate of lime forms a kind of varnish, which under the influence of transpiration is detached in the form of lumps; upon inflamed surfaces it produces a feeling of coolness and comfort. More decided drying qualities may be imparted to it by dissolving in it, with heat, about 3 per cent. of gelatin.

Dilute Glycerate of Sucrate of Lime.—Preparation of Chalk Liniment.—For the preparation of chalk liniment with the glycerate of sucrate of lime it is preferable to use a dilute solution, such as exists before the mixture is concentrated, as directed in a preceding paragraph. It then has a density of 1·144 at 15° C., and contains, by volume, in 100 cubic centigrams, 3·512 grams of lime, corresponding to 26·05 grams of dry sucrate of lime; by weight, in 100 grams, 3·289 grams of lime, corresponding to 24·19 grams of dry sucrate.

The formula for the liniment of the glycerate of sucrate of lime is as follows:—

Ground Nut Oil	200 grams.
Dilute Glycerate of Sucrate of Lime. .	100 "

Mix in a vessel having a large mouth.

By substituting oil of sweet almonds, a mixture is obtained that is a little less solid. In certain cases where it is desired to combat the

odor which is given off from the profuse suppuration of severe and extensive burns, the simple oil may be replaced by camphorated oil.

Dr. Lagarde, who used this preparation in the treatment of the soldiers injured in the before-mentioned explosion, reports that it fulfils the principal requisites sought for in application to burns; that it efficaciously protects the injured surface from contact with the air, does not adhere to the wound, diminshes the pain, modifies the suppuration, and hastens and controls the cicatrization. It is easily used, and may be renewed without causing pain to the patient. Dr. Muller has also used the liniment in the same hospital, in cases of erysipelas of the face.—*Pharm. Jour. and Trans., Oct.* 25, 1873.

THE ESTIMATION OF PHOSPHORUS IN FATTY MIXTURES.*

In order to separate phosphorus from articles of food, vomits and other matters containing fatty substances, in such a state of purity that it may be unfailingly recognized by characteristic properties, and produced in court as evidence, D. A. van Bastelaer gives a process already found of advantage in several judicial inquiries, which is based essentially on the solubility of phosphorus in ether, and its almost perfect indifference towards solution of ammonia if in contact with it for only a short time. If the substance from which phosphorus is to be separated is not fluid, *e. g.*, phosphor paste, it is first reduced by addition of water to the condition of a sufficiently thin pap, in order that it may be thoroughly mixed with ether by agitating for some seconds. Not only the weight of the original substance taken, but also that of the added water is noted. After the reduction, about 100 grams, or any other suitable weighed quantity of the fluid mass is taken, mixed with as much ether, and left in contact therewith in the cold for four or five hours, during which period the mixture is to be violently shaken at frequent intervals. The ether being now decanted, is replaced with an equal quantity of fresh ether, and these operations are repeated about three times. The united ethereal liquids, protected from dust, are allowed to evaporate spontaneously at 15°—20° C. in a shallow dish. At this point some water is added, that the phosphorus may be protected from the action of the air after evaporation of the ether. If what remains after removal of the ether be gently warmed to 50°—60° C., the phosphorus unites itself with

* *N. Jahr. f. Pharm.*

a portion of the fat, forming a fluid globular mass under the water, whilst the remainder of the matter taken up by ether rises to the surface as a thin film. The globule containing phosphorus is now treated with about 10 to 15 grams of strong aqueous ammonia in a small flask and violently agitated. This treatment is repeated a few times. Lastly, if the adhering ammonia be removed by washing first with water acidulated with sulphuric acid, and then with pure water, the phosphorus remains behind, certainly somewhat soft in consistence, but otherwise exhibiting all the physical and chemical properties which characterize it. It may be brought in a little glass tube and handed to the judge as *corpus delicti.—Phar. Jour. and Trans., Oct.* 18, 1873.

Varieties.

Lead Poisoning from Hair-Dye.—Dr. Crocker reports the following: During the month of February, R. W., aged fifty-five years, applied to him for relief from pains, similar to those which characterize muscular rheumatism. In addition to pains in the deltoid and other muscles of the shoulder, he suffered from partial paralysis of both arms. The disease appeared to yield under the influence of simple remedies, but later it was noticed that there was almost complete paralysis of the extensors of the fingers. The patient could seize objects forcibly, but found a difficulty in letting them go. As he had suffered for several years from occasional attacks of colic, his gums were examined, but no metallic stain could be seen. After the water of the dwelling had been tested and the kitchen utensils suspected, it was found that he had, for the last fifteen years, made use of a hair-dye, which he prepared himself, as follows: To one pint of water, add one teaspoonful of acetate of lead and three teaspoonfuls of sulphur. This he was accustomed to use at least once a week. This lotion was interdicted, and, under the influence of iodide of potassium and electricity, he made a good recovery.—*N. Y. Med. Journ., from Union Médicale.*

Nitrate of Zinc as a Caustic.—M. Lefort describes (*Journ. de Pharm. et de Chimie*, May, 1873) a caustic paste prepared from nitrate of zinc, which has been reported on favorably by Drs. Clément and Desgrange, at the Hôtel-Dieu, Lyons. The nitrate is prepared by dissolving commercial zinc with heat in equal volumes of nitric acid and water, maintaining an excess of zinc, and concentrating until a slight basic precipitate is formed, which carries down any iron present. Boiling water is then added, and, when cool, the solution is filtered, and evaporated at a gentle heat until slight ebullition takes place; if then left to cool, it forms a cake, which should be broken up and drained in a glass funnel. Of the nitrate of zinc so prepared, 100 grams are dissolved in 50 grams of water, and afterwards incorporated with 50 grams of wheaten flour. This forms an homogeneous paste, which remains soft, spreads easily over surfaces without afterwards contracting, and does not spread at the edges

through absorption of moisture. When made into cylinders, it should not be dried by heat, as it slightly decomposes and becomes yellow and friable; it may be kept dry by placing it in a tin box with some pieces of quicklime, but not in contact with them.—*Am. Journ. Med. Sciences*, Oct. 1873, from *London Medical Record*, June 18, 1873.

Local Applications of Chloral.—Chloral, besides its hypnotic properties, seems to possess an antiputric action. Either the hydrate of chloral, or what is called metachloral, may be used. The latter, according to Dumas, is prepared by placing in a bottle with an emery stopper some chloral and five or six times its weight of sulphuric acid. The next day the chloral is transformed into metachloral, which must be well washed with water to remove the sulphuric acid. It is a coarse white powder, smelling strongly of chloral, hardly soluble even in boiling water, and distilling between 150° and 200° C. without melting. Regnault has shown that it is similar in composition to chloral, and its formula is $C_4 H Cl_3 O_2$, being simply an isomeric modification of chloral. Dr. Dujardin-Beaumetz, of Paris, has lately experimented on the local application of chloral as a caustic or modifying agent and a local anæsthetic. It may be applied in substance, which mode is rather difficult, or in solution of different strength—namely, one or two per cent. in water or glycerin. Metachloral is applied in powder upon foul wounds, replacing advantageously iodoform, the smell of which is so disagreeable. Cases are given where the application of chloral has been of much use in gangrene, phagedena, rodent ulcers, lardaceous ulcerations, certain diseases of the skin, lupus, and for modifying the cavities of abscesses, etc. It is of much value in relieving the pain of cancerous ulcerations; and, as chloral possesses the property of preventing decomposition of the urine, Dr. Beaumetz thinks that in certain diseases of the bladder it may be usefully injected into that viscus.—*Am. Journ. Med. Sciences*, Oct. 1873, from *Lancet*, Aug. 30, 1873.

Examination of Grape Sugar and Milk Sugar.—M. Campani employs as reagent a concentrated solution of subnitrate of lead, mixed with a dilute solution of acetate of copper. The liquid to be tested is added to 5 c. c. of this solution and raised to a boil. If grape sugar is present the mixture becomes colored, and gives a yellow precipitate. Cane sugar has no action. A dilute solution of milk sugar behaves like grape sugar. If the solutions of these sugars are concentrated the precipitates are brick-red.—*Chem. News*, Sept. 26, from *Les Mondes*.

Minutes of the Pharmaceutical Meeting.

The regular Monthly Pharmaceutical Meeting was held on Tuesday afternoon, Nov 18th, 1873. 21 members present.

Peter Williamson, one of the original founders of the College in 1821, was present, and on being called to the President's chair, addressed the meeting in a few appropriate remarks, in which he referred to the progress made in pharmacy since the time when the College was founded.

The minutes of the previous meeting were read and approved.

Donations to the Library and Cabinet being in order, Prof. Maisch presented to the Library a Catalogue published by the Department of the Interior, called A Circular of Information of the Bureau of Education. The thanks of the meeting were directed to be forwarded by the Registrar.

Samples of Myrcia acris, Eucalyptus globulus, bark and oil of E. globulus, were presented by Jas. T. Shinn, from W. Neergaard, of New York. A specimen of apomorphia was also exhibited, and it was stated that one grain placed on the tongue would be followed by emesis in six minutes. 1-10th of a grain administered hypodermically produced the same effect.

Prof. Maisch presented to the College cabinet a beautiful specimen of the leaves and fruit of Chondodendron tomentosum, which had been sent by Daniel Hanbury, of London. The paper illustrated by the specimens was republished in the American Journal of Pharmacy, October, 1873.

Richard V. Mattison read a paper on Pancreatin, in which he detailed a process of preparation analogous to that of E. Scheffer's for making Pepsin. The solution of Pancreatin was found to possess the property of emulsifying cod liver oil readily. The paper will be found in full in this number.

Prof. Maisch read an article from W. M. Rice on Emulsifying Cod Liver Oil, in which the writer used tragacanth as the medium. A sample was exhibited made by his process, in which the taste of the oil was thoroughly disguised. A discussion here arose as to what, in the opinion of the members present, constituted a good emulsion. Jas. T. Shinn advocated thin emulsions, and did not favor the dispensing of thick emulsions, for he thought that the patient could readily incorporate the water and oil that had partially separated by standing, and would prefer to do it rather than take a thick emulsion. Jos. P. Remington stated that he had made and dispensed a cod liver oil jelly, made on the same principle as the emulsion of Mr. Rice's, and the formula would be found at page 175 of the present volume of the Journal, extracted from the London *Pharmaceutical Journal* of March 8th, 1873. This jelly seemed to give satisfaction wherever it was used; but it was necessary to use only the finest and freshest oil. Prof. Maisch spoke of the use of alkaline solutions in emulsions, and of the tendency of such to spoil if kept too long and become disagreeable to the taste.

A member wished to know of Mr. Rice whether a smaller quantity of tragacanth could not be used in the formula.

To this F. Stryker Boisnot replied that both Mr. Rice and himself had tried various proportions, and found that they could not use less.

R. V. Mattison said that gum arabic and sugar had proved to be the best in his experience for thick emulsions, and solution of pancreatin for thin ones.

Dr. A. W. Miller read an interesting paper on Cosmolin, and exhibited a number of specimens. He said that cosmolin amounted to nothing more than paraffin dissolved in what is technically termed neutral oil. He showed a sample made in this way, which resembled cosmolin very closely. It could be sold at a fair profit, if made in this way, for 25 cents per pound, whilst cosmolin costs three times that. His paper will be found elsewhere. President Williamson remarked that petroleum, paraffin, cosmolin, &c &c., had all come up since his day; but even in old times they had petroleum. An article called Seneca Oil used to sell freely for 11 d. per ounce, which was petroleum collect-

ed by the Indians. It was found floating on the water in certain parts of Pennsylvania, and by absorbing it by a blanket and wringing it out, it was collected in small quantities and commanded a good price. It was used for liniments, &c. &c.

J. P. Remington read a note on Aromatized Waters, advocating the use of the compound waters in preparing elixirs, &c. &c. The note will be found in this number of the Journal.

Prof. Maisch spoke of a process for preparing distilled water which had been communicated to him over a year ago by Mr. George G. Percival, of Waterville, Me., but, at the author's request, was not published then Mr. Percival found that volatile oils are very freely soluble in boiling water, so that he has taken a patent for obtaining volatile oils on a large scale by a process based thereon. He suggests to dissolve the volatile oils in hot distilled water; on cooling, a turbid solution results, showing that the water is a saturated solution. By filtering, as perfect an aromatized water as can be made from volatile oils is obtained.

Jas. T. Shinn preferred distillation, and said that he made an imitation of Curacoa cordial by distilling the oils with water and then mixing with sugar, and coloring.

On motion of S. M. McCollin, the above papers were referred to the Publication Committee.

The meeting then adjourned.

JOSEPH P. REMINGTON, *Registrar.*

Editorial Department.

THE NEW CONSTRUCTION OF THE INTERNAL REVENUE LAW.—On pages 518 and 519 of the November number of the "American Journal of Pharmacy" will be found an account of the action had by the Philadelphia College of Pharmacy. We now give in full to our readers the report of the committee of this College of the interview had with Commissioner Douglass October 1st:

To the Philadelphia College of Pharmacy:

Your Committee, appointed at the last meeting of the College, proceeded to Washington on afternoon of September 30th, in company with a committee, appointed for a similar purpose, from the Philadelphia Drug Exchange, consisting of two members, Chas. Bullock and Alex. H. Jones.

At 9 o'clock on the following morning the Joint Committee waited on the author of all of our Revenue troubles, and informed him of the occasion of our visit. At first he did not seem to regard the situation in the most favorable light, but a happy thought occurring just at the right time (we allude to Mr. Kimball, the assistant, who is really the originator of the astute productions), he summoned his aid, and the battle began.

Robert Shoemaker, having seen service in former visits, introduced each member, and then laid before the doughty Knights of the Stamps the grievances under which we groan and suffer. The views of the several bodies represented were brought out, and the manner in which the decision would affect the whole trade was dwelt upon at length; a full and free interchange of opin-

ion was had, and, although the discussion was conducted with courtesy at all times, it was evident to all of the members of the Committees that the position held by the Commissioner and his assistant was not to be *visibly* shaken by any arguments that could be brought to bear.

The discussion soon narrowed down to the point, In a medicine, what constitutes similarity in style to a patent or proprietary medicine? and here we found the Commissioner more ignorant than an ordinary country school-boy. When Chas. Bullock stated that such common officinal articles as laudanum, paregoric, castor oil, sweet spt. of nitre, sweet oil, &c., &c., were largely put up by wholesale druggists for consumption in country stores, going very often in sparsely populated districts, where physicians could not be called readily, he said that he never knew of the medicines mentioned ever being sold except by physicians' prescription, and he had an opportunity of knowing. Further on in the discussion a member asked if they had called in any experts to confer with them in regard to recent decisions. He said that they did not think it at all necessary, as the law was there and they were competent to decide upon it. He accidentally or purposely let fall the remark subsequently, that he was a Homœopath, and never took any of the medicines himself. Notwithstanding the fact that the only surviving member of the original committee of experts who were called in when Sect. 13th of Act of July 13th, 1866—the very section about which there is so much trouble—was present, and clearly explained the intention of the framers of the act, he still was unwilling to reverse his decision or yield one inch.

Each member of the Committee protested earnestly against being required to stamp ordinary retail counter sales of officinal articles, or of any medicine the formula of which is public property, and they claimed that such articles of materia medica were exempt under Sect. 13th of the Act of July 13th, 1866, which plainly says:

Sec. 13. *And be it further enacted*, That no stamp tax shall be imposed upon any uncompounded medicinal drug or chemical, nor upon any medicine compounded according to the United States or other national pharmacopœia, or of which the full and proper formula is published in any of the dispensatories now or hitherto in common use among physicians or apothecaries, or in any pharmaceutical journal now issued by any incorporated college of pharmacy, when not sold or offered for sale, or advertised under any other name, form or guise than that under which they may be severally denominated and laid down in said pharmacopœias, dispensatories or journals as aforesaid, nor upon medicines sold to or for the use of any person, which may be mixed and compounded for said person according to the written receipt or prescription of any physician or surgeon. But nothing in this section shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority, or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general, or advertised in newspapers or by public handbills for popular sale and use, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, use, or effect, whether such claim be real or pretended.

But the Commissioner explained that "where physic and physician were supplied to the patient at one and the same time, as was the case where labels were used giving the name, dose and direction of the medicine, it was plain that a stamp was required." This is wisdom, indeed!

He ruled that it was not necessary to call it B's Laudanum or C's Castor Oil to render it liable; but the dose and directions were sufficient to make it stampable.

We were not prepared to hear that this law was intended to advance the interests of the physician, or indeed of any profession, nor interfere with what the public have long considered their right, but supposed that it was for the purpose of raising revenue by levying a tax on commodities which are either articles of luxury or are not absolutely necessities.

It clearly is not the intention of the General Government to gather into the treasury of the United States pennies that are wrung from the suffering and needy poor; for it is upon these that this decision bears with the most weight.

There was one glaring inconsistency in the Commissioner's position that was difficult to understand.

He explains in his Special Circular, No. 145, paragraph 10,—just issued,—what he means by a style and manner similar to patent medicines, and well has he described what an ordinary druggist would recognize as a proprietary or quack medicine. For instance, to quote

"The leading points or characteristics of this style are (*a*), that such medicines are almost always put up in *retail packages*, packages which are sold *with their contents*, directly to the consumer; and (*b*) each package is accompanied with a label, a handbill, or a wrapper, containing an enumeration of the diseases or affections for which the medicine is a remedy or a specific; containing, also, directions as to when and how it is to be taken, what constitutes a proper dose, how frequently such doses are to be taken, etc., with such general directions with regard to the mode of administering the medicine as physicians give when called to prescribe for a patient. It is a style adapted to popular sale and use, to enable the sick to supply themselves with remedies, and to use the same without the aid or advice of a physician or medical practitioner. Medicines and medicinal preparations, whether officinal or non-officinal, by whatever rule or authority, or formula compounded, put up in such a style, *in retail packages*, and accompanied with a label, a circular, or a wrapper, giving the disease, diseases, or affections for which such medicines are to be or have been applied or used, directions how to use, etc., are liable to stamp tax under Schedule C. The law makes no provision for exempting such medicines, but expressly declares that the statute *shall not be construed* so as to give exemption."

Now, then, what consistency is there here, when he takes so much trouble and uses so much Government ink, to state *in detail* all the points that go towards making a medicine proprietary or patent, constituting a "similarity in style," and then rules that simple laudanum, *if not* put up in retail packages, but dispensed from a larger bottle over the counter as needed, IF NOT having on it a label, handbill or wrapper, containing an enumeration of the diseases or affections for which the medicine is a remedy or specific; but if it merely contains on it the name and proper dose, without which no careful dispenser would sell it, it is declared to be liable to tax. Does he rule that an offence in one particular renders the offender guilty of all?

Patent medicines have corks in them (for the convenience of the public), so have officinal medicines; Schenck's Pills and Seidlitz Powders are both put into a box, and in this particular they are "similar in style;" yet who could not tell which, in the meaning of the Act of July 13th, 1866, was exempt?

No doubt the Commissioner's answer to this would be, You supply the public with the means of curing themselves of some disease or other without calling in a physician. For this privilege the Government of the United States suffers to the extent of one cent on every twenty-five cents or under, and you must pay for it.

As instances, a number of labels for special preparations were cited by the Committee, such as "Epsom Salts—one dose," "Castor Oil—one dose,"—both require stamps; "Seidlitz Powders"—on this label the Commissioner and his assistant differed in judgment. One said that the ordinary directions, "Put the contents of a white paper into half a tumblerful of water, and the contents of a blue paper into another half a tumblerful of water; mix the two and drink," &c., &c., did not indicate the dose and directions.

We immediately took exception to this, of course, as the contents of the two papers is the dose; and, if the other rulings are just, Seidlitz powders form no exception, and must be classed with them.

The Committee at last, finding it was useless to prolong the discussion, retired. It was first proposed to stay over in Washington and await the production of a Circular that was then going through the press, but it was concluded that it would be of no avail to further engage in controversy, and having just enough time to go to the hotel, obtain our baggage and pay our bills, and catch the train, we shook off the dust of the city of magnificent distances in indignation, feeling that our profession had a gross indignity heaped upon it, in that we should be classed with quacks, charlatans and rum sellers.

ROBT. SHOEMAKER,
JOSEPH P. REMINGTON.

October 20th, 1873.

The report of the Committee of the Philadelphia Drug Exchange is equally

full and explicit. We copy from it the concluding sentences, giving a summary of the entire report:

1st. The name of the medicinal preparation, together with the name of the manufacturer or seller on the label, if the preparation is officinal, or of published recipe, will not require a stamp. The formula of the preparation may also appear on the label without necessitating a stamp.

2d. Mention of the proper dose of a preparation on the label will be considered as placing it in the style or manner of a proprietary or patent medicine, and a stamp will be required.

3d. A printed label giving proper dose, when put upon a medicine dispensed across the counter, will require a stamp, but the dispenser can write such a label, giving full directions, for each individual sale without being required to stamp it.

4th. Plasters will not require a stamp, being "*mechanical appliances*," provided they are not of private recipe; directions for application of the plaster not being considered in the same light *as a dose* on a remedy for internal use.

5th. On gross packages, not intended for the consumer, the dose will be permitted as information to the dispenser.

(Signed) ALEXANDER H. JONES,
CHARLES BULLOCK,
Committee.

The following correspondence, between Hon. Leonard Myers, representative of the Fourth Congressional District of Pennsylvania, and the Commissioner of Internal Revenue, has been placed at our disposal:

PHILADELPHIA, Oct. 12, 1873.

DEAR SIR.—The druggists of this city are in considerable trouble over your letter of September 9, 1873, in regard to the stamp duty on medicinal preparations.

The uncertainty as to what preparations are liable and what exempt could at any moment render the best men in this or any community subject to fine or seizure, I believe you will agree with me that the law contemplates no such hardship and no such uncertainty. The 13th section of the Act of July 13th, 1866, has not, until now, been construed to impose duties in the cases complained of, and I write in the belief that the labels and preparations submitted for your opinion were not like those which the druggists believe, and I believe, not liable to the tax. If we are wrong, then, just at a time when Congress was lightening the burthens of the people, it has unintentionally imposed upon the suffering and the poor a duty which was not demanded during the pressing exigencies of the war.

I enclose six labels used by my constituent, James Kenworthy, for the preparations respectively of "Citrate of Magnesia," "Paregoric," "Tincture of Chloride of Iron," "Jamaica Ginger," "Ipecacuanha" and "Spiced Syrup of Rhubarb"—all laid down in the U. S. Dispensatory, which he fears may under your ruling be liable to the tax, and which in my judgment are not so liable. It is true, there are directions on the labels with some reference to the qualities of the medicines; but none of these preparations are new or secret or Proprietary or Patent, or alleged to have "any special proprietary claim to merit or to any peculiar advantage in mode of preparation," etc., and therefore they are not "put up in a style or manner similar to that of patent or proprietary medicines in general."

If these are taxable then half the medicines which the people *must* buy are so taxable—an imposition of duty just the reverse of what Congress intended. It would, indeed, be contradictory if this internal tax were levied or construed to exist when Congress had (by the Act of June 6, 1872), in order to aid the suffering poor as well as to foster our industries, placed on the free list nearly

all drug and dye substances not grown or produced in this country. We were willing to lose our Customs Revenues to the extent of millions of dollars annually, in order to benefit and protect the people, and certainly have no need and no right to collect it now in the shape of an internal tax.

Feeling sure you will agree with me, and awaiting your reply, I am

Yours very truly,

(Signed) LEONARD MYERS.

Hon. J. W. DOUGLASS, Commissioner of Internal Revenue.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INT. REVENUE,
WASHINGTON, October 15, 1873.

SIR.—I have received your letter of the 12th inst. enclosing six labels, which you state are samples of labels used by your constituent, James Kenworthy, Esq., Druggist, which he affixes to certain medicinal articles which he puts up for sale, made, compounded or prepared according to formulas laid down in the U. S. Dispensatory, and which he fears may be regarded by the revenue officers as rendering said articles liable to stamp tax under the construction given to the law in a letter from this office addressed to Supervisor Tutton, September 9th.

You state it to be your own opinion that these labels do not render the articles liable to tax, for the reason that "none of these preparations are new, or secret, or proprietary or patent, or alleged to have any specified proprietary claim to merit or to any peculiar advantage in mode of preparation," etc., *and therefore* you conclude that "they are not put up in a style or manner similar to that of a patent or proprietary medicine in general."

You further state that if these articles are taxable, then half the medicines which the people must buy are so taxable—an imposition of duty just the reverse of what Congress intended.

Enclosed I send you a pamphlet just issued from this office upon the subject of stamp tax under Schedule C. This pamphlet embodies the views of this office after careful and mature consideration of the entire subject. Trusting that this special circular will fully answer the enquiries contained in your letter with regard to the use of labels, like the samples, I have only to remark further that I have not the remotest desire or intention of depriving any person or persons engaged in the business of making, preparing, compounding or vending medicines or medicinal articles of the utmost exemptions which the law gives them; and I only ask that they will not, as your constituent seems to me to have done, deprive themselves of any rights to such exemptions, which the law otherwise intended them to have by putting up ordinary common and perfectly well known medicines and medicinal articles without any proprietary claim to merit—medicines manufactured strictly in accordance with formulas published in standard medical authorities, *in a style* or *manner similar* to patent or proprietary medicines in general.

Just to the extent that Congress intended to exempt all such articles, whatever might have been the motive, I desire that they shall be exempted. What Congress actually did intend, I can judge of only from the language of the statute. Where that declares that "nothing in this section (section 13 of the Act of July 13, 1866, and the only section of law now in force granting any exemption whatever) shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general." I conclude that it was the intention to *tax* all medicines, no matter how simple, how common, how well-known or by whom used, that *were put up* in such style. If that is not a plain and logical inference, then I must confess that I am unable to comprehend what the language does mean.

What constitutes a similarity to the style of patent or proprietary medicines in general, is set forth in the Special No. 145, which I enclose, as also in my letter before alluded to, addressed to Supervisor Tutton. I think I am not mistaken in my views, and if not, one of two alternatives must be adopted by the makers and venders of medicines, who adopt the style which the law declares *outside* of any provision of exemption, viz., either to change such style of putting up, or stamp the packages.

Whenever Congress sees fit to provide for exempting articles under Schedule C altogether from stamp tax, I shall offer no opposition. But so long as the law remains upon the statute book, my duty is to execute it according to its clear intent, as I understand that intent from the plain, and, as it seems to me, unmistakable meaning of the language used.

Yours respectfully,

(Signed) J. W. Douglass, Commissioner.

Hon. Leonard Myers, Philadelphia, Pa.

Philadelphia, October 27th, 1873.

Dear Sir.—My reply to yours of the 15th inst. has been delayed until receipt of the pamphlet (Special No. 145), on the subject of Stamp Tax under Schedule C.

While not directly stating whether druggists' labels, such as I enclosed, rendered the preparations liable to tax, you refer me to this pamphlet for your decision, and this only confirms me in the opinion that they are not liable. You say your duty is to execute the law according to its clear intent, and I suppose no one will controvert that proposition; but when the preparations you now think liable have been publicly sold for seven years since the passage of the law without the slightest attempt by your Department to tax them, it is, to say the least, very natural that the correctness of your present decision should be questioned.

Objecting to my views that the preparation of these medicines, according to formulas of the Dispensatory, taken in connection with the simple directions of the labels, do not justify their assimilation to patent or proprietary medicines, you quote the language of the act, and claim that they "are put up in a style or manner similar to that of patent or proprietary medicines in general." Now this is exactly what I deny. There is not a patent or proprietary medicine sold which, in addition to a label and instructions, is not enclosed in a wrapper.

In paragraph 8 of your Special, you assume that a label, a hand-bill *or* a wrapper, will give the packages a "similarity of style" with proprietary articles. In this you are undoubtedly mistaken, for in the latter these three elements are combined, while all medicines, including what you have admitted to be exempt, have "labels" affixed to them.

This paragraph asserts that the other leading characteristic of similarity is "that such medicines are almost always put up in *retail packages*, which are *sold with their contents* directly to the consumer.

But in none of the instances where I asked your opinion, except that of "Citrate of Magnesia" (which only has the label) is the medicine sold in retail or unbroke. *packages*.

They are the medicines in hourly demand, put up and sold in the quantities called for. Nor has Congress levied or intended to levy a tax upon them.

You will find, on a closer examination, that these articles are exempt even under your own rulings, and, confident that your sincere desire is to carry out the law, I do not believe you will endeavor to strain a point against the people in order to obtain a revenue which, until now, has never been demanded.

Very respectfully yours,

Leonard Myers.

Hon. J. W. Douglass.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INT. REVENUE,
WASHINGTON, Nov. 10, 1873.

SIR.—I have received your note of the 6th inst., calling my attention to the fact that no reply has been received to your letter of the 27th ult., and stating further that since you wrote to me on the subject of stamping medicines, the papers speak of a modification of your (my) order, so far as relates to medicines sold in quantities called for by consumers, and asking for a reply to your letter as above, and also asking me to state the substance of this decision, meaning, I suppose, the alleged modification of my order.

In reply, I have to state that, as you made no specific inquiry or asked for any further information relative to the views of this office on the subject in addition to those communicated to you in my letter to you of the 15th ult., and in the published circular issued from this office—copy of which was sent you—I saw nothing in your letter calling for a reply, unless it might be the declaration contained therein in the following words: "You say your duty is to execute the law according to its clear intent, and I suppose no one will controvert that proposition; but when the preparations you now think liable have been publicly sold for seven years since the passage of the law, without the slightest attempt by your Department to tax them, it is, to say the least, very natural that the correctness of your present decision should be questioned." It is to the last part of this declaration made by you, which applies no less to my predecessors in office as Commissioner, from and including Mr. Rollins to the present time, than to myself, to which I, for myself and on behalf of them, would reply; and I now assert, in the most positive terms, and with the amplest evidence before me of the correctness of what I say, that from the time of the passage of the Act of July 13th, 1866, to the present time, this office has held the same views regarding the liabilities of medicines and medicinal articles, not known or claimed to be patent, proprietary, or made by any secret or unpublished formulas, when such medicines were put up in style similar to that of patent or proprietary medicines in general, etc. This doctrine, decision, ruling or requirement of law, however one may please to term it, was published May 10, 1867, in instructions to revenue officers, Series 3, No. 10, repeated May 1, 1869, in Series 5, No. 10, reiterated again July 31, 1871, and given forth in letters without number sent from this office north, south, east and west, in answer to letters of correspondents, either officers of the revenue, manufacturers, compounders or venders of medicinal articles.

My letter to Supervisor Tutton, of September 9th, and the printed circular latterly issued from this office, communicate no new doctrine, ruling or decision of this office on the subject of stamp tax under Schedule C. They do define, as we understand it, the style or manner in which patent or proprietary medicines in general are put up, and they do declare that any and all medicines, no matter how simple or how compounded, whether the rich man's medicine or the "poor man's," which are put up in such style as there defined, are not within the provisions of exemption from stamp tax.

Whether the views and instructions of the circular on this point of "style" are correct or not, will be a matter for the Courts to decide. I believe they are, and I have neither seen nor heard, thus far, since their publication, any reasons which lead me to doubt their correctness. I am aware that persons have misrepresented, perhaps misapprehended the views of this office, and the statements made, or alleged to have been made by me in a familiar conversation with gentlemen claiming to represent the Philadelphia College of Pharmacy and the Drug Exchange of that city, are written out from memory and published in pamphlet form, with other matter, for distribution to the trade, as my views or the views of the office upon matters thus set forth; but upon this matter I have only to say that I hold myself and the Office of Internal Revenue responsible, *only* for its own authoritatively published rulings and decisions.

I return to you the labels of James Kenworthy, enclosed in your previous

letter, and with reference to them I have further to say that such articles as are indicated on these labels, or any medicinal article, put up in bulk packages from which druggists, apothecaries or physicians dispense them to, or for, sick patients, and not put up in small packages in advance of any call for them by or for such patients; or, in other words, not put up *in advance* by the maker, manufacturer or vender "for popular sale and use," are not held by this office or by Special 145, or by any other published authoritative special or circular, or printed decision, that I am aware of, as liable to stamp tax by reason of any label attached thereto, by the manufacturer of such article having written or printed thereon either the relative strength of the drug or medicine, or what may otherwise be regarded as giving such relative strength, viz., the maximum and minimum dose proper to be administered in ordinary cases.

Further, the placing upon any bottle of medicine or drug, whatever the size of such bottle a label with these words, "The contents of this bottle are poisonous," would not render such bottles liable to be stamped.

I am yours respectfully,

J. W. Douglass, Commissioner.

Hon. Leonard Myers, Philadelphia, Pa.

To this correspondence we append the following note from Committee of College and Drug Exchange:

The Committee from the Philadelphia College of Pharmacy and from the Drug Exchange presented to Mr. Douglass, Commissioner of Internal Revenue, their credentials from the bodies they represented.

The report of the Committee of the Drug Exchange contains substantially the result of the interview. No *misrepresentation* was intended, and if there was *misapprehension* on the part of the Committee it was the misfortune of the Department in not making its views clear in dealing with a subject with which it evidently was not familiar.

The Committee were impressed with the intention of the Department not to permit the mention of *dose on any label*, whether dispensed extemporaneously or put up ready for sale, and to elicit more distinctly the design of the Department in respect to extemporaneous sales, the Committee dwelt at some length upon that subject. It was as gratifying as unexpected when official information subsequently reached us that the *dose* printed on a label would be permitted when the medicine was put up on call.

The "new departure," as all in the trade fully understand, lies in the construction as to what constitutes "the style or manner similar to that of patent or proprietary medicines in general." The Department says mention of dose on the label of a consumer's package, when not put up especially for said consumer, sets up such a style or manner; experts, long in business, say it does not; and herein lies the controversy. The "departure" is radical; the tax is on information. The article can be manufactured and sold without stamp duty; but information brings the stamp. *Revenue* from a law so intended would be too precarious to be seriously entertained! The "form and manner of a patent medicine" is well understood by druggists. The Department acknowledged that no druggist or expert had been consulted as to what, in the opinion of the trade, set up such "a style or manner." Had this precaution been taken, we would probably have escaped the unpleasant contention of facts *versus* construction.

Joseph P. Remington,
Robt. Shoemaker,
Committee from Philadelphia College of Pharmacy.
Chas. Bullock,
Alexander H. Jones,
From Drug Exchange.

The following report refers to the action of the Philadelphia College at its meeting held October 21st:

The Committee appointed by the Philadelphia College of Pharmacy to endeavor to bring before the U. S. District Court a case testing the validity of the construction of the Commissioner of Internal Revenue as to what constitutes the "style or manner of patent or proprietary medicines in general," under Section 13th of the Act of July 13th, 1866, called upon the U. S. District Attorney to learn whether such a case could come before the Court in November; having ascertained that it was likely that the Court would hear the case, they with their attorney waited upon the Supervisor of Internal Revenue of this city, and stated the wish of the druggists to have the contest of opinion settled by judicial exposition, so far as this district was concerned.

The Supervisor declined to go into Court except upon a suit brought against him for recovery of property confiscated. The Committee were aware that in a suit instituted in this way no decision could be obtained for three or four months, before which time they hoped that the obnoxious construction of the law would be modified, or the section repealed.

ROBT. SHOEMAKER,
CHAS. BULLOCK,
For the Committee.

The new construction by Commissioner Douglass of the Internal Revenue Law has, as might have been expected, aroused the druggists and pharmacists throughout the country. All organizations, as far as heard from, are unanimous in their opinion that an united effort should be made during the approaching session of Congress to either have the rulings of Commissioner Douglass set aside by legislative action, or to have that section of the law repealed altogether, which, under the new construction, is excessively oppressive and vexatious to the druggists and to the public at large.

The Philadelphia Drug Exchange has passed the following resolution:

That the proceedings of the former meeting, together with the report of the Committee read before this meeting, be embraced in a circular, to be issued to the druggists throughout the United States, asking their co operation by bringing all the influence in their power to bear upon their respective Congressional representatives, to have repealed, at the next session of Congress, all that portion of "Schedule C" which refers to medicinal preparations.

The pamphlet has been issued and extensively distributed by the following Committee, appointed for this purpose: William Gulager, Alexander H. Jones, Charles Bullock, Henry H. Rittenhouse and Benjamin V. Mein.

At a meeting of the Board of Directors of the Louisville College of Pharmacy, held November 10th, the following preamble and resolutions were adopted:

WHEREAS, The recent construction of "Schedule C" of the Internal Revenue Laws by Commissioner Douglass, addressed to Supervisor Tutton, of Philadelphia, has been brought to our notice; in consideration of the high authority from which it emanates, and of the great confusion of the whole subject of stamp duty arising out of this decision, manifestly at variance with the opinions of all former commissioners of Internal Revenue; and

WHEREAS, The numberless medicines and preparations required to be stamped in accordance with the said definition of the law, render it next to impossible

to be complied with in the daily routine of business, and, notwithstanding every precaution upon our part, we, or our employees, will be liable unintentionally to err; therefore

Resolved, 1. That this College, as a corporate body, feels called upon to unite with other colleges of pharmacy and pharmaceutical associations of the United States, in an earnest, persistent effort to effect, through Congress, at its next session, a repeal of such part of the Internal Revenue Laws as relates to a stamp tax on medicines.

Resolved, 2, That the late ruling of the Commissioner, in our opinion, affects the people more than the druggists and manufacturers, for two prominent reasons, viz.: first, the increase of costs, which fall upon them in the end; and, second, should the druggist, in order to avoid the inconvenience of stamping every small package of medicine dispensed by him, omit to have printed on his labels the proper dose to be taken, then the ignorance upon their part in the administration of medicines (without directions), oftener essential to the preservation of life in emergencies when no physician can be summoned immediately. We therefore confidently appeal to the public to sustain us in any effort we may make to secure the repeal of this odious law altogether, and give to them medicines free from stamp tax.

Resolved, 3, That, to this end, we will respectfully petition our representatives to use all their influence at the next session of Congress to secure the repeal of said law, which the present Commissioner mystifies the more in every attempt to define it.

Resolved, 4, That we hereby pledge the hearty co operation of the Louisville College of Pharmacy in all efforts that may be made in this direction.

At a special meeting of the New Jersey Pharmaceutical Association held at New Brunswick, on Wednesday, November 12th, the following was unanimously adopted:

Whereas, In the opinion of this Association, the Internal Revenue Laws, in regard to the stamps on medicines, necessarily cause conflicting decisions from different Commissioners and their various deputies, thereby creating infinite trouble and annoyance to retail druggists, besides frequently causing them to appear, although innocent, as criminals in the eye of the law; and

Whereas, These laws were originally passed at a time when a revenue was absolutely needed from every branch of industry, which necessity no longer exists, taxing the poor man's necessities, equally with the luxuries of the rich; and

Whereas, The Commissioner has himself acknowledged his difficulty in executing the laws, and has signified his willingness to assist in their repeal; therefore

Resolved, That in the opinion of this Association it is absolutely necessary that such portion of the Internal Revenue Law, known as Schedule C, and all acts relating thereto, be repealed.

The Maryland College of Pharmacy has adopted a petition to Congress asking for the repeal of the section in question, and we have been informed that petitions are being signed by the citizens of Baltimore, having the same end in view.

The Massachusetts College of Pharmacy has prepared a petition to Congress, in which, among others, the following strong argument in favor of the repeal of Section 13 of the Act of July 13, 1866, occurs:

We respectfully submit that a tax made oppressive on the technical wording of a label, and unjust by dating back its operations under a new decision, is so much money wrested from persons convicted of no crime, and any law that

can be construed so that honest people pursuing an honorable calling cannot live under it without being subject to such pains, penalties, expense and business inconvenience, should be repealed as a simple act of justice."

The action of Commissioner Douglass has had one good effect: it has shown to many druggists and pharmacists the necessity and importance of united action, and the danger of preserving a state of isolation. An organization of the drug and pharmaceutical trade of the State of Maryland has been effected, at present with the object of consulting about the Internal Revenue law, and the latest decisions under it. With a similar object in view, the druggists of Janesville, Wisconsin, held a meeting November 14, at which Hon. Mr. Williams, member of Congress, was present, and promised to lend his aid towards a modification of the ruling. We have been informed of similar efforts being made in other States, and sincerely trust that these organizations may become permanent ones.

We venture the assertion that there is hardly a trade or profession the members of which have more cheerfully submitted to this kind of taxation by stamps than the druggists and pharmacists. Their united opposition to the new principles introduced into an old law clearly proves, therefore, how oppressive and unjust these are regarded by them.

In connection with this subject, it is but proper to acknowledge the position towards this "new departure" taken by many of the most influential of the political papers throughout the country. They have done a great deal to convince the public of the burden the "new views" would entail upon them, and to secure the co-operation of every intelligent person throughout the country in the efforts of effecting a modification or an entire repeal of the section.

Effervescent Solution of Tartrate of Sodium.—In the July number a formula for the above preparation has been published, which appears to have been favorably received by many of the readers of the "Journal." We have been informed by a correspondent that, adding gradually the carbonate of sodium to the solution of tartaric acid, the liquid assumed the form of a thick and almost solid magma when about one-half of the carbonate had been added, in consequence of the crystallization of bitartrate of sodium. This is, with some difficulty, and by the application of a gentle heat, combined with the remaining soda. Our correspondent advises, very properly, to dissolve the carbonate first, and add to it the acid.

Pills of Sulphate of Quinia.—Mr. C. C. Patterson, of St. Clairsville, O., in a communication to the editor, suggests that these pills may be made of small size and without any gum, syrup or extract, by adding to the quinia a little tartaric acid and sufficient water. This is a modification of the plan published by Prof. Parrish in this journal in 1853, and which consists in adding aromatic sulphuric acid to the quinia and rolling the mass before it hardens, which takes place rather suddenly, and may be retarded, particularly when operating upon a larger quantity, by the addition of a very small quantity of honey or simple syrup.

The Richmond Pharmaceutical Association.—We are pleased to state that this Association has been added to the number of pharmaceutical societies already in existence in the United States. A vast field for good work is before it, and we feel sure will be well cultivated. The Association was definitely organized, November 10th, by the election of the following officers: President, Hugh Blair; Vice-Presidents, John Purcell and Dr. John R. Garnett; Recording Secretary, Jos. N. Willis; Corresponding Secretary, T. Roberts Baker; Treasurer, Henry Bodeker; Executive Committee, the President and Recording Secretary, *ex officio*, R. H. Meade, Powhatan E. Dupuy and John B. Purcell.

The Association will meet regularly the second Monday evening in every month.

The Alumni Association of the Philadelphia College of Pharmacy has resolved to place an album containing the photographs of the graduates of this College in the College library, and requests all graduates to send their card pictures to one of the officers. The Association named is already looking forward to the Commencement exercises, which are to take place on the 12th of March next. On the evening preceding the Commencement a reception will be given to the graduating class, for which occasion it is proposed to invite with the members and guests their lady friends. Mr. William C. Bakes, Class 1855, will deliver the annual address.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

An American Dictionary of the English Language. By Noah Webster, L.L.D. Thoroughly revised and greatly enlarged and improved by Chauncey A. Goodrich, D.D., late Professor of Rhetoric and Oratory, and also Professor of the Pastoral Charge, in Yale College, and Noah Porter, D D., L.L.D., President of Yale College. Springfield, Mass.: Published by G. & C. Merriam. 1873. Royal 4to, 1840 pages. With 3000 engravings. Full sheep, marbled edge. Price $12.

The value of Noah Webster's dictionary is so universally acknowledged that the work itself needs no praise from us. As a standard of orthography, orthoepy and etymology it stands unrivalled, and has received the endorsements of the best scholars, and sustained its high reputation, at home and abroad, for more than a generation. In fact, it is a monument of careful research, of completeness and general accuracy, and as such is a work of practical utility and almost indispensable necessity.

The new edition before us has been carefully prepared, and in glancing over the definitions of the technical terms employed in pharmacy and medicine we find them clear, concise and correct, with one exception: Pint is defined to mean in medicine *twelve ounces*, while in the United States it is sixteen fluidounces, or the measure of a little more than sixteen and a half ounces avoirdupois of water at the temperature of 60° F., and in Great Britain signifies, since the introduction of the British Pharmacopœia, the measure of exactly twenty ounces of distilled water.

The work is handsomely gotten up, the paper good, the types clear and the pictorial illustrations generally unexceptionable.

Pharmacopœa Germanica. The German Pharmacopœia. Translated by C. L. Lochman. With an Appendix explanatory of the French Metrical System, and Tables of Weights and Measures, &c. Philadelphia: David D. Elder & Co. 1873. 12mo, pp. 400. Price, bound in cloth, $2.50.

On page 94 of the present volume we have noticed the new German Pharmacopœia, and in the numbers from March to July we have published a number of formulas of the more important preparations contained in it. The book before us is the entire Pharmacopœia translated into English, and as such will doubtless be welcome to most of our readers. It contains, in addition to the entire text, the English name or names of every article, whether crude drug or preparation. We find the translation to be quite faithful, and the occasional addition of a word to the original only serves to render it clearer; these additions, including the English names, are designated by being enclosed in brackets. This accuracy has been secured by Mr. Lochman having submitted his translation to Mr. H. N. Wilder, who compared it once more with the official Latin text. We heartily recommend this work to all pharmacists who desire to become acquainted with the medicinal preparations used in Germany, and in this country prescribed by many physicians, or who feel interested in comparing our national Pharmacopœia with the latest one published in Europe.

Circulars of Information of the Bureau of Education. No. 4. 1873. List of Publications by Members of certain College Faculties and Learned Societies in the United States. 1867—1872. Washington: Government Printing Office. 8vo, pp. 72.

The information contained in this circular is undoubtedly possessed of considerable interest; but its meagreness is to be regretted, as well as the want of uniformity of the several authors in the insertion or exclusion of their works. In some instances only important volumes are mentioned; in others, short articles in journals and reviews are enumerated. In making this remark, the Bureau suggests that the latter would seem the preferable method, as each title explains itself.

It is proposed to hold an educational exhibition in Philadelphia in 1876, as a part of the nation's record of progress. In view of this, it is desired that any professors or instructors of colleges or universities, or any members of learned and scientific societies in the United States, whose works are not included in the above catalogue, send to the Bureau of Education full lists of their publications.

OBITUARY.

Professor Dr. F. Crace Calvert died, at the age of 54 years, on the 24th of October last. The deceased was for about twenty-five years Honorary Professor of Chemistry in the Royal Institution of Manchester, and had been elected honorary and corresponding member of many learned societies. He was indefatigable in his chemical researches, and numerous discoveries and improvements were originated or perfected by him. Many of his papers bearing on pharmacy have been republished in this journal during the last twenty years.

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